



PART 70

PERMIT TO OPERATE

Under the authority of RSMo 643 and the Federal Clean Air Act the applicant is authorized to operate the air contaminant source(s) described below, in accordance with the laws, rules, and conditions set forth here in.

Operating Permit Number: OP2006-063
Expiration Date: AUG 30 2011
Installation ID: 095-0031
Project Number: 2003-09-030

Installation Name and Address

Aquila – Sibley Generating Station
33200 E. Johnson Road
Sibley, MO 64088
Jackson County

Parent Company's Name and Address

Aquila, Inc.
PO Box 11739
Kansas City, MO 64138

Installation Description:

Aquila - Sibley Generating Station is an electric energy generating station located in Sibley, Missouri. Equipment at the installation includes three coal-fired and tire-derived fuel-fired boilers, coal and fly ash handling equipment, parts washer, welding equipment, storage tanks, and miscellaneous combustion equipment.

The installation is an existing major source of particulate matter less than ten microns (PM₁₀), sulfur oxides (SO_x), nitrogen oxides (NO_x), volatile organic compounds (VOC), carbon monoxide (CO) and hazardous air pollutants (HAP).

AUG 31 2006

Effective Date

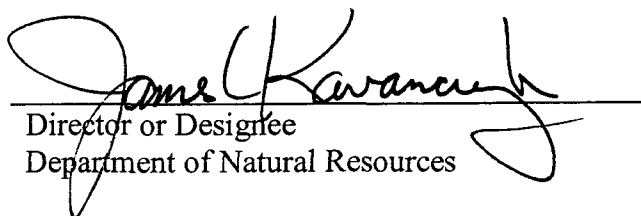

Director or Designee
Department of Natural Resources

Table of Contents

I. INSTALLATION DESCRIPTION AND EQUIPMENT LISTING.....	3
II. PLANT WIDE EMISSION LIMITATIONS.....	5
III. EMISSION UNIT SPECIFIC EMISSION LIMITATIONS.....	6
EU0010 – COAL CONVEYOR #18	6
PERMIT CONDITION EU0010-001	
10 CSR 10-6.070 New Source Performance Regulations and	
40 CFR 60 Subpart Y Standards of Performance for Coal Preparation Plants	6
EU0020 THROUGH EU0040 – COAL HANDLING SYSTEM (EXCEPT FOR CONVEYOR #18),	
COAL CRUSHER HOUSE, AND FLY ASH HANDLING	7
PERMIT CONDITION (EU0020 THROUGH EU0040)-001	
10 CSR 10-6.220 Restriction of Emission of Visible Air Contaminants	8
EU0050 THROUGH EU0070 - BOILERS.....	9
PERMIT CONDITION (EU0050 THROUGH EU0070)-001	
10 CSR 10-2.040 Maximum Allowable Emission of Particulate Mater from Fuel Burning Equipment Used for Indirect	
Heating and	
40 CFR Part 64 Compliance Monitoring.....	9
PERMIT CONDITION (EU0050 THROUGH EU0070)-002	
10 CSR 10-6.220 Restriction of Emission of Visible Air Contaminants	13
PERMIT CONDITION (EU0050 THROUGH EU0070)-003	
10 CSR 10-6.260 Restriction of Emission of Sulfur Compounds.....	15
PERMIT CONDITION (EU0050 THROUGH EU0070)-004	
10 CSR 10-6.270 Acid Rain Source Permits Required.....	17
PERMIT CONDITION (EU0050 THROUGH EU0070)-005	
10 CSR 10-6.350 Emission Limitations and Emissions Trading of Oxides of Nitrogen	17
EU0080 THROUGH EU0110 – EMERGENCY GENERATOR, WELDING MACHINES, AND	
BACK-UP DIESEL FIRE PUMP	19
PERMIT CONDITION (EU0080 THROUGH EU0110)-001	
10 CSR 10-6.260 Restriction of Emission of Sulfur Compounds.....	19
EU0120 AND EU0130 – PARTS WASHER AND SPRAY PAINT BOOTH	20
PERMIT CONDITION (EU0120 and EU0130)-001	
10 CSR 10-6.060 Construction Permits Required	
Construction Permit #0897-025 Issued 8/04/1997.....	21
PERMIT CONDITION EU0120-002	
10 CSR 10-2.210 Control of Emissions from Solvent Metal Cleaning	21
PERMIT CONDITION EU0130-002	
10 CSR 10-2.210 Control of Emissions from Solvent Metal Cleaning	23
IV. CORE PERMIT REQUIREMENTS.....	27
V. GENERAL PERMIT REQUIREMENTS	30
VI. ATTACHMENTS	36
ATTACHMENT A	37
ATTACHMENT B	38
ATTACHMENT C	39
ATTACHMENT D	40
ATTACHMENT E.....	41

I. Installation Description and Equipment Listing

INSTALLATION DESCRIPTION

Aquila - Sibley Generating Station is an electric energy generating station located in Sibley, Missouri. Equipment at the installation includes three coal-fired and tire-derived fuel-fired boilers, coal and fly ash handling equipment, parts washer, welding equipment, storage tanks, and miscellaneous combustion equipment.

The installation is an existing major source of particulate matter less than ten microns (PM₁₀), sulfur oxides (SO_x), nitrogen oxides (NO_x), volatile organic compounds (VOC), carbon monoxide (CO) and hazardous air pollutants (HAP).

Reported Air Pollutant Emissions, tons per year							
Year	Particulate Matter ≤ Ten Microns (PM-10)	Sulfur Oxides (SO _x)	Nitrogen Oxides (NO _x)	Volatile Organic Compounds (VOC)	Carbon Monoxide (CO)	Lead (Pb)	Hazardous Air Pollutants (HAPs)
2004	38.52	12858.80	10127.41	89.71	407.99	-	112.00
2003	38.60	12511.50	12604.58	94.10	427.88	-	108.59
2002	37.40	11804.20	12326.16	89.21	405.59	-	100.44
2001	34.30	10530.30	13039.29	85.77	390.09	-	102.50
2000	38.90	15879.00	13542.21	92.16	376.07	-	85.95

EMISSION UNITS WITH LIMITATIONS

The following list provides a description of the equipment at this installation which emits air pollutants and which is identified as having unit-specific emission limitations.

Emission Unit #	Description of Emission Unit	2004 EIQ EP#
EU0010	Coal Conveyor #18	EP-03
EU0020	Coal Handling System (Except for Conveyor #18)	EP-03
EU0030	Coal Crusher House	EP-04
EU0040	Fly Ash Handling System	EP-06
EU0050	Boiler #1	EP-05A
EU0060	Boiler #2	EP-05B
EU0070	Boiler #3	EP-05C
EU0080	Emergency Generator	EP-07
EU0090	Welding Machine	EP-08
EU0100	Welding Machine	EP-09
EU0110	Back-up Diesel Fire Pump	EP-11
EU0120	Parts Washer	EP-10
EU0130	Spray Paint Booth	EP-12

EMISSION UNITS WITHOUT LIMITATIONS

The following list provides a description of the equipment that does not have unit specific limitations at the time of permit issuance.

Description of Emission Source

Coal unloading (EP-01)

Coal storage pile (EP-02)

Portable space heaters (EP-17)

Storage tanks for volatile organic liquids

20,000-gallon coal yard diesel tank, installed prior to 1984 (EP-15)

13,000 MgO/diesel tank, empty and out of service

8,500-gallon waste oil tank (EP-16)

Two 1,000-gallon unleaded gasoline tanks

1,200-gallon emergency generator diesel tank

Two 500-gallon MgO/diesel day tanks, empty and out of service

500-gallon steam jenny #1 fuel oil tank

500-gallon MgO flush tank, empty and out of service

One 300-gallon fire water diesel tank

Various tanks and drums for storing bearing oil, compressor fluid, diesel fuel supplement, hydraulic fluid, lube oil, mineral oil, silicon oil, solvent, transformer oil, turbine oil, and waste oil; none are over 40,000 gallons; and none have capacities of at least 75 m³ and were constructed after July 23, 1984.

DOCUMENTS INCORPORATED BY REFERENCE

These documents have been incorporated by reference into this permit.

1) Construction Permit #0393-004

2) Construction Permit #0897-025

II. Plant Wide Emission Limitations

The installation shall comply with each of the following emission limitations. Consult the appropriate sections in the Code of Federal Regulations (CFR) and Code of State Regulations (CSR) for the full text of the applicable requirements. All citations, unless otherwise noted, are to the regulations in effect as of the date that this permit is issued.

None

III. Emission Unit Specific Emission Limitations

The installation shall comply with each of the following emission limitations. Consult the appropriate sections in the Code of Federal Regulations (CFR) and Code of State Regulations (CSR) for the full text of the applicable requirements. All citations, unless otherwise noted, are to the regulations in effect as of the date that this permit is issued.

IV. EU0010 – COAL CONVEYOR #18			
Emission Unit	Description	Manufacturer/Model #	2004 EIQ Reference #
EU0010	Conveyor #18 conveys coal from storage pile, and transfers coal to conveyor #7 in transfer house #2. The coal is then transferred to crusher. Its MHDR 700 ton/hr; and it was installed in 1993	NA.	EP-03

PERMIT CONDITION EU0010-001

10 CSR 10-6.070 New Source Performance Regulations and
40 CFR 60 Subpart Y Standards of Performance for Coal Preparation Plants

Emission Limitation:

The permittee shall not cause to be discharged into the atmosphere from any coal processing and conveying equipment, coal storage system, or coal transfer and loading system processing coal, gases which exhibit 20 percent opacity or greater.

Monitoring:

- 1) The permittee shall conduct opacity readings on this emission unit (EU0010) using the procedures contained in USEPA Test Method 22. At a minimum, the observer should be trained and knowledgeable about the effects on visibility of emissions caused by background contrast, ambient lighting, observer position relative to lighting, wind and the presence of uncombined water. Readings are only required when the emission unit is operating and when the weather conditions allow. If no visible or other significant emissions are observed using these procedures, then no further observations would be required. For emission units with visible emissions perceived or believed to exceed the applicable opacity standard, the source representative would then conduct a Method 9 observation.
- 2) The following monitoring schedule must be maintained:
 - a) Weekly observations shall be conducted for a minimum of eight consecutive weeks after permit issuance. Should no violation of this regulation be observed during this period then;
 - b) Observations must be made once every two weeks for a period of eight weeks. If a violation is noted, monitoring reverts to weekly. Should no violation of this regulation be observed during this period then;
 - c) Observations must be made once per month. If a violation is noted, monitoring reverts to weekly.
- 3) If the source reverts to weekly monitoring at any time, monitoring frequency will progress in an identical manner from the initial monitoring frequency. If the source has already performed the weekly and biweekly monitoring and is doing semi-annual monitoring in compliance with a previous permit, the weekly and biweekly monitoring do not need to be repeated.

Recordkeeping:

- 1) The permittee shall maintain records of all observation results (see Attachment A), noting:
 - a) Whether any air emissions (except for water vapor) were visible from the emission units,
 - b) All emission units from which visible emissions occurred, and
 - c) Whether the visible emissions were normal for the process.
- 2) The permittee shall maintain records of any equipment malfunctions. (See Attachment B)
- 3) The permittee shall maintain records of any Method 9 test performed in accordance with this permit condition. (See Attachment C)
- 4) Attachments A, B and C contain logs including these recordkeeping requirements. These logs, or an equivalent created by the permittee, must be used to certify compliance with this requirement.
- 5) These records shall be made available immediately to any Missouri Department of Natural Resources' personnel upon request.
- 6) All records shall be maintained for five years.

Reporting:

- 1) The permittee shall report to the Air Pollution Control Program Enforcement Section, P.O. Box 176, Jefferson City, MO 65102, no later than ten days after the permittee determined, using the Method 9 test, that the emission unit exceeded the opacity limit.
- 2) Reports of any deviations from monitoring, recordkeeping and reporting requirements of this permit condition shall be submitted semiannually, in the semi-annual monitoring report and annual compliance certification, as required by Section V of this permit.

EU0020 THROUGH EU0040 – COAL HANDLING SYSTEM (EXCEPT FOR CONVEYOR #18), COAL CRUSHER HOUSE, AND FLY ASH HANDLING			
Emission Unit	Description	Manufacturer/Model #	2004 EIQ Reference #
EU0020	Coal Handling System (Except for Conveyor #18) conveys and transfers coal. These coal handling units were installed prior to 1970, except for conveyor #16 and conveyor #17, which were installed in 1993	NA	EP-03
EU0030	Coal crusher house equipped with baghouse; MHDR 700 ton/hr	NA	EP-04
EU0040	Fly ash from Boilers #1 and #2 is collected in a transfer vessel and pneumatically conveyed to silo. Fly ash from Boiler #3 is pneumatically conveyed directly from precipitator hoppers to silo. Dry fly ash is sold or sluiced in a wetted condition into holding pond. Transfer vessel and silo each equipped with fabric filter. Installed 1993.	NA	EP-06

PERMIT CONDITION (EU0020 THROUGH EU0040)-001

10 CSR 10-6.220 Restriction of Emission of Visible Air Contaminants

Emission Limitations:

- 1) No owner or other person shall cause or permit emissions to be discharged into the atmosphere from any source any visible emissions with an opacity greater than 20%.
- 2) Exception: A person may discharge into the atmosphere from any source of emissions for a period(s) aggregating not more than six (6) minutes in any 60 minutes air contaminants with an opacity up to 60%.

Monitoring:

- 1) The permittee shall conduct opacity readings on these emission units (EU0020 through EU0040) using the procedures contained in USEPA Test Method 22. At a minimum, the observer should be trained and knowledgeable about the effects on visibility of emissions caused by background contrast, ambient lighting, observer position relative to lighting, wind and the presence of uncombined water. Readings are only required when the emission unit is operating and when the weather conditions allow. If no visible or other significant emissions are observed using these procedures, then no further observations would be required. For emission units with visible emissions perceived or believed to exceed the applicable opacity standard, the source representative would then conduct a Method 9 observation.
- 2) The following monitoring schedule must be maintained:
 - a) Weekly observations shall be conducted for a minimum of eight consecutive weeks after permit issuance. Should no violation of this regulation be observed during this period then-
 - b) Observations must be made once every two weeks for a period of eight weeks. If a violation is noted, monitoring reverts to weekly. Should no violation of this regulation be observed during this period then-
 - c) Observations must be made once per month. If a violation is noted, monitoring reverts to weekly.
- 3) If the source reverts to weekly monitoring at any time, monitoring frequency will progress in an identical manner from the initial monitoring frequency. If the source has already performed the weekly and biweekly monitoring and is doing monitoring in compliance with a previous permit, the weekly and biweekly monitoring do not need to be repeated.

Recordkeeping:

- 1) The permittee shall maintain records of all observation results (see Attachment A), noting:
 - a) Whether any air emissions (except for water vapor) were visible from the emission units,
 - b) All emission units from which visible emissions occurred, and
 - c) Whether the visible emissions were normal for the process.
- 2) The permittee shall maintain records of any equipment malfunctions. (See Attachment B)
- 3) The permittee shall maintain records of any Method 9 test performed in accordance with this permit condition. (See Attachment C)
- 4) Attachments A, B and C contain logs including these recordkeeping requirements. These logs, or an equivalent created by the permittee, must be used to certify compliance with this requirement.
- 5) These records shall be made available immediately to any Missouri Department of Natural Resources' personnel upon request.
- 6) All records shall be maintained for five years.

Reporting:

- 1) The permittee shall report to the Air Pollution Control Program Enforcement Section, P.O. Box 176, Jefferson City, MO 65102, no later than ten days after the permittee determined, using the Method 9 test, that either or both of the emission units exceeded the opacity limit.
- 2) Reports of any deviations from monitoring, recordkeeping and reporting requirements of this permit condition shall be submitted semiannually, in the semi-annual monitoring report and annual compliance certification, as required by Section V of this permit.

EU0050 THROUGH EU0070 - BOILERS			
Emission Unit	Description	Manufacturer/Model #	2004 EIQ Reference #
EU0050	Cyclone-fired boiler; MHDR 609.6 MMBtu/hr; fired with sub-bituminous coal, bituminous coal and tire-derived fuel (TDF); equipped with dedicated electrostatic precipitator; shares stack with EU0060 and EU0070; installed 1960	Babcock & Wilcox	EP-5A
EU0060	Cyclone-fired boiler; MHDR 627.3 MMBtu/hr; fired with sub-bituminous coal, bituminous coal and tire-derived fuel (TDF); equipped with dedicated electrostatic precipitator; shares stack with EU0050 and EU0070; installed 1962	Babcock & Wilcox	EP-5B
EU0070	Cyclone-fired boiler; MHDR 4094.1 MMBtu/hr; fired with sub-bituminous coal, bituminous coal and tire-derived fuel (TDF); equipped with dedicated electrostatic precipitator; shares stack with EU0050 and EU0060; installed 1969	Babcock & Wilcox	EP-5C

PERMIT CONDITION (EU0050 THROUGH EU0070)-001

10 CSR 10-2.040 Maximum Allowable Emission of Particulate Mater from Fuel Burning Equipment
Used for Indirect Heating and 40 CFR Part 64 Compliance Monitoring

Note: Compliance Assurance Monitoring (CAM) applies to these units, so this permit condition incorporates parts of 40 CFR Part 64 and, through that, parts of 40 CFR Part 60. However, the Department of Natural Resources, Air Pollution Control Program, Compliance/Enforcement Section has approved a CAM plan, CAM test plan, and CAM QA/QC plan for these units. Where conflicts arise between these documents and 40 CFR Part 60, the CAM plan, CAM test plan, and CAM QA/QC plan govern. This will assure that where there is doubt, the acceptance criteria in these approved documents will be used, and not those in 40 CFR Part 60 Appendix B Performance Specification 11 (PS-11). These monitors are indicators of compliance, and not compliance monitors. The full PS-11 requirements do not apply to monitors that are only indicators of compliance.

Emission Limitation:

The permittee shall not emit particulate matter in excess of 0.12 pounds per million BTU's of heat input.

Monitoring:

- 1) The permittee shall install, calibrate, maintain and operate a PM continuous emission monitoring system (CEMS) in the stack to provide a reasonable assurance of the performance of the electrostatic precipitators (ESPs) in accordance with §60.13 and Appendix B to 40 CFR Part 60.

- 2) The PM CEMS shall be installed such that representative measurements of emissions are obtained and problems due to any detected flow disturbances or varying PM stratification are minimized. Prior to installation, measurements shall be made of flow dynamics and/or particulate matter to determine the existence or extent of PM stratification. Additional procedures for location of PM CEMS contained in Performance Specialization 11 (PS-11) of Appendix B to Part 60 shall be used.
- 3) The PM CEMS shall be installed and operational prior to conduction of any performance tests. The permittee shall perform verification procedures to confirm the operational status of the PM CEMS prior to the required monitoring start. Verification of operational status shall, as a minimum, include completion of the manufacturer's written requirements or recommendations for installation, operation and calibration of the device.
- 4) The permittee shall establish the indicator range as the hourly average PM CEMS reading covering the full range of measurements made during the initial calibration testing plus 25%. This indicator range shall be a calibrated instrument output and shall reflect reasonable assurance of the proper operation and maintenance of the electrostatic precipitators (ESPs).
- 5) Except for monitoring malfunctions, associated repairs, and required quality assurance or control activities (including calibration checks and zero and span adjustments), the PM CEMS shall be in continuous operation and required sampling frequency shall be in accordance with §64.13(e)(2). The PM CEMS shall complete a minimum of one cycle of operation (sampling, analyzing, and data recording) for each successive 15-minute period.
- 6) Data recorded during monitoring malfunctions, associated repairs, and required quality assurance or control activities shall not be used for data averages and calculations, or fulfilling a minimum data availability requirement. The permittee shall use all the data collected during all other periods in assessing the operation of the ESPs and associated monitoring system.
- 7) The permittee shall reduce all data to one-hour averages. One-hour averages shall be computed from four or more data points equally spaced over each one-hour period.
- 8) Results shall be recorded on an automatic Data Acquisition Handling System (DAHS) as follows:
 - a) Record the analog output of the PM CEMS;
 - b) Calculate emissions values, in the units of the required standard, and according to the correlation(s) established during the PM CEMS calibration;
 - c) Store the hourly averages of the calculated emissions values;
 - d) Record the daily zero-span calibration results;
 - e) Initiate an alarm if any daily zero or span value exceeds the error limit of plus or minus 5%;
 - f) Exceedances - initiate an alarm if the hourly averaged PM CEMS emission value reaches or exceeds the lower of the following limits:
 - i) A value equivalent to 1.25 times the highest PM CEMS response value reached during the correlation tests, or
 - ii) A value equivalent to 0.9 times the source emission limit; and,
 - g) Initiate an alarm on the occurrence of a malfunction status indicator from the PM CEMS.
- 9) Upon detecting an exceedance, the permittee shall restore operation of EU0050 through EU0070 (including the ESPs and associated capture system) to their normal or usual manner of operation as expeditiously as practicable in accordance with good air pollution control practices for minimizing emissions. The response shall include minimizing the period of any startup, shutdown or malfunction and taking any necessary corrective actions to restore normal operation and prevent the likely recurrence of the cause of an excursion or exceedance (other than those caused by excused startup or shutdown conditions). Operational checks shall be made as soon as practicable and may include:
 - a) ESP field checks (T/R voltage, current, spark rate);

- b) Visual inspection of control equipment;
 - c) Unusual fuel characteristics; and,
 - d) Boiler upset conditions.
- 10) Quality Assurance and Control Practices (QA/QC)
- a) Factory supplied filter standards will be used to calibrate the instruments at a reference zero and upscale span value. These calibration standards will be maintained in accordance with manufacturer's recommendations. Following the calibration an internal zero-span cycle will be initiated, thus establishing initial values for future reference.
 - b) Daily zero-span cycles will be performed with the results stored in the data system and compared with the initial values.
 - c) Should either the zero or span value error exceed plus or minus 5% of the starting value, an alarm will be initiated and the permittee shall recalibrate the instrument to the factory standards.
 - d) A quarterly reference calibration will be performed as described in the instrument operations manual. The factory standards will be used to measure instrument response at a zero and upscale value. Should either of these readings exceed the factory standard by more than plus or minus 5% of the full-scale measurement range, the instrument will be reset to the factory standard values.
 - e) Routine scheduled maintenance procedures will be established in accordance with manufacturer's recommendations.
- 11) If the accumulation of exceedances or excursions exceeds 5% of operating time for a reporting period, the permittee shall develop and implement a Quality Improvement Plan (QIP) as expeditiously as practicable. The plan initially shall include procedures for evaluating the control performance problems and, based on the results of the evaluation procedures, the permittee shall modify the plan to include procedures for conducting one or more of the following actions, as appropriate:
- a) Improved preventive maintenance practices;
 - b) Process operation changes;
 - c) Appropriate improvements to control methods;
 - d) Other steps appropriate to correct control performance;
 - e) More frequent or improved monitoring.
- 12) The permittee shall begin the monitoring required under this permit condition within 180 days after the approval of the Part 70 renewal operating permit.
- 13) The permittee shall maintain monitoring, including but not limited to, maintaining necessary parts for routine repairs of the monitoring equipment, at all times.

Testing:

- 1) The instruments shall be calibrated based on the boiler load, coal, and ESPs characteristics and any other performance or test data deemed applicable by the permittee and/or director. Reference method measurements will be conducted in accordance with accepted method standards and compared with the integrated (arithmetic average) PM CEMS output over the reference method test period.
- 2) Correlation/Performance Testing
 - a) The PM CEMS shall be initially operated for a period of approximately 30 days under various operating conditions to identify condition necessary to produce two target concentration levels for the correlation testing. During the 30 day pre-test monitoring period the following key operating parameters will be recorded on each stack:
 - i) Monitor output;
 - ii) Plant load;

- iii) Fuel type;
- iv) ESP voltage and current readings.
- b) A minimum of twelve (12) valid runs (e.g. 2 loads, 2 fuel blends and 3 tests per condition) will be required to obtain the correlation equation and correlation coefficient. A run will be declared “not valid” only when performed during a time when conditions are clearly not representative of normal operations. The linear correlation will be determined according to Equation 11-3 of Performance Specification 11 of Appendix B to Part 60. The correlation coefficient will be calculated according to Equation 11-14 of Performance Specification 11 of Appendix B to Part 60.
- c) Tests shall be performed at two different PM concentration levels, with a minimum of three tests at each level, if possible. Level 1 encompasses the range from 0 to 50% of the maximum PM concentration available. Level 2 should range from 75% to 100% of the maximum concentration. The source should be operated over the complete range of expected conditions, so as to assure that the data produced is representative. The data gathered during the 30-day pretest monitoring period shall be used to produce the desired concentrations for the test runs.
- d) During correlation testing, the reference method data and PM CEMS measurements will be converted into units of pounds PM per MMBtu to establish limits comparable to the emission limitation of 0.12 lb PM/MMBtu. Once established, these limits will be converted into units of pounds PM per actual stack gas volume, or pounds of PM per megawatt. During operation after testing, the PM CEMS output and determination of PM levels with respect to limits will be conducted only in units of pounds per actual stack gas volume or pounds PM per megawatt.
- e) The correlation coefficient (r) resulting from the calibration testing must be greater than or equal to 0.75.
- f) Once the correlation equation has been determined, it shall be applied to PM CEMS data collected by the Data Recorder.

Recordkeeping:

- 1) The permittee shall comply with the recordkeeping requirements specified in §70.6(a)(3)(ii) including records of required monitoring information that include the following:
 - a) The date, place, and time of sampling or measurements;
 - b) The date(s) analyses were performed;
 - c) If applicable, the company or entity that performed the analyses;
 - d) The analytical techniques or methods used;
 - e) The results of such analyses; and
 - f) The operating conditions as existing at the time of sampling or measurement.
- 2) The permittee shall maintain records of all required monitoring data and support information for a period of at least five years from the date of the monitoring sample, measurement, report, or application. Support information includes all required calibration and maintenance records and all original strip-chart recordings for continuous monitoring instrumentation, and copies of all required reports (including any written Quality Improvement Plan (QIP)).
- 3) The permittee may maintain records on alternative media, such as microfilm, computer files, magnetic tape disks, or microfiche, instead of paper provided that the use of such alternative media allows for expeditious inspection and review, and does not conflict with other applicable recordkeeping requirements.
- 4) Following any exceedance, the permittee shall record that operations returned to normal without operator action, or any necessary follow-up actions to return operation to within the indicator range.

- 5) These records shall be made available immediately to any Missouri Department of Natural Resources' personnel upon request.

Reporting:

- 1) The permittee shall report to the Air Pollution Control Program Enforcement Section, P.O. Box 176, Jefferson City, MO 65102, no later than ten days after any deviations/exceedances of this permit condition.
- 2) Performance Testing.
 - a) The permittee shall submit operating parameter data obtained during the conduct of any applicable compliance or performance tests.
 - b) The permittee shall submit documentation that no changes to the emission units, including the control device and capture system, have taken place that could result in a significant change in the control system performance or selected indicator ranges since the last performance or compliance test.
- 3) If the permittee identifies a failure to achieve compliance with the PM emissions limit for which the PM CEMS did not provide an indication of an excursion or exceedance while providing valid data, or the results of compliance or performance testing document a need to modify the existing indicator ranges, the permittee shall promptly notify the MDNR and, if necessary, submit a proposed modification to the Part 70 permit to address the necessary monitoring changes. Such a modification may include, but is not limited to, reestablishing indicator ranges, modifying the frequency of conducting monitoring and collecting data, or the monitoring of additional parameters.
- 4) The permittee shall submit quarterly monitoring reports certified by a responsible official. The monitoring report shall include, as a minimum, the following information, as applicable:
 - a) All instances of deviations from permit requirements must be clearly identified.
 - b) Prompt reporting of deviations from permit requirements, including those attributable to upset conditions, the probable cause of such deviations, and any corrective actions or preventive measures taken.
 - c) Summary information on the number, duration and cause (including unknown cause, if applicable) of excursions or exceedances, as applicable, and the corrective actions taken;
 - d) Summary information on the number, duration and cause (including unknown cause, if applicable) for monitor downtime incidents (other than downtime associated with zero and span or other daily calibration checks, if applicable); and
 - e) A description of the actions taken to implement a Quality Improvement Plan (QIP) during the reporting period as specified in §64.8. Upon completion of a QIP, the permittee shall include in the next summary report documentation that the implementation of the plan has been completed and reduced the likelihood of similar levels of excursions or exceedances occurring.

PERMIT CONDITION (EU0050 THROUGH EU0070)-002

10 CSR 10-6.220 Restriction of Emission of Visible Air Contaminants

Emission Limitations:

- 1) No owner or other person shall cause or permit emissions to be discharged into the atmosphere from any existing source any visible emissions with an opacity greater than 20%.
- 2) Exception: A person may discharge into the atmosphere from any source of emissions for a period(s) aggregating not more than six (6) minutes in any 60 minutes air contaminants with an opacity up to 60%.

Monitoring/Operational Requirements:

- 1) A continuous opacity monitoring system shall be installed, calibrated, maintained, and operated in accordance with 40 CFR Part 60, Appendix B - Performance Specification 1.
- 2) COMS General Requirements
 - a) Source operating time includes any time fuel is being combusted and/or a fan is being operated.
 - b) Cycling times include the total time a monitoring system requires to sample, analyze and record an emission measurement. Continuous monitoring systems for measuring opacity shall complete a minimum of one cycle of operating (sampling and analyzing) for each successive ten-second period and one cycle of data recording for each successive six-minute period.
 - c) The COMS shall be certified by the director of the Air Pollution Control Program after review and acceptance of a demonstration of conformance with 40 CFR Part 60, Appendix B - Performance Specification 1.
 - d) The COMS shall be subject to audits conducted by the Missouri Department of Natural Resources, and all COMS records shall be made available immediately upon request to department personnel.

Recordkeeping:

- 1) The permittee shall maintain a file (hard copy or electronic version) of the following information for a minimum of five years from the date the data was collected:
 - a) All information reported in the quarterly summaries including:
 - i) The charts or printouts generated by the COMS, where applicable;
 - ii) An opacity summary report;
 - iii) An excess opacity emission summary;
 - iv) An excess opacity emission summary list;
 - v) An opacity monitoring downtime summary list; and
 - b) All six-minute opacity averages and daily Quality Assurance (QA)/Quality Control (QC) records. This includes, but is not restricted to the daily monitoring system calibration check done on the continuous opacity monitoring system.
- 2) The permittee shall maintain records of any opacity monitoring equipment malfunctions.
- 3) The permittee shall maintain records of any Method 9 test performed in accordance with this permit condition. Attachment C or equivalent recordkeeping form shall be used to provide Method 9 Visual Observation log records.
- 4) These records shall be made available immediately for inspection to any Missouri Department of Natural Resources' personnel upon request.
- 5) All records shall be maintained for five years.

Reporting:

- 1) The permittee shall report to the Air Pollution Control Enforcement Section, P.O. Box 176, Jefferson City, MO 65102, no later than ten days after any exceedance of the opacity limit established by this permit condition.
- 2) The permittee shall submit a quarterly written report to the Missouri Department of Natural Resources Air Pollution Control Program. All quarterly reports shall be postmarked no later than the thirtieth day following the end of each calendar quarter and shall include the following emissions data:
 - a) A summary including total time for each cause of excess emissions and/or monitor downtime;
 - b) Nature and cause of excess emissions, if known;

- c) The six-minute average opacity values greater than the opacity emission requirements (the average of the values shall be obtained by using the procedures specified in the Reference Method used to determine the opacity of the visible emissions);
- d) The date and time identifying each period during which the COMS was inoperative (except for zero and span checks), including the nature and frequency of system repairs or adjustments that were made during these times; and
- e) If no excess emissions have occurred during the reporting period and the COMS has not been inoperative, repaired or adjusted, this information shall be stated in the report.

PERMIT CONDITION (EU0050 THROUGH EU0070)-003

10 CSR 10-6.260 Restriction of Emission of Sulfur Compounds

Emission Limitations:

- 1) Aquila - Sibley Plant shall not cause or allow emissions of sulfur dioxide into the atmosphere in excess of nine pounds (9 lbs) of sulfur dioxide (SO₂) per million Btus actual heat input averaged on any consecutive three (3)-hour time period.
- 2) No person shall cause or permit the emission of sulfur compounds from any source which causes or contributes to concentrations exceeding those specified in 10 CSR 10-6.010 Ambient Air Quality Standards.

Pollutant	Concentration by Volume	Remarks
Sulfur Dioxide (SO ₂)	0.03 parts per million (ppm) (80 micrograms per cubic meter (µg/m ³))	Annual arithmetic mean
	0.14 ppm (365 µg/m ³)	24-hour average not to be exceeded more than once per year
	0.5 ppm (1300 µg/m ³)	3-hour average not to be exceeded more than once per year
Hydrogen Sulfide (H ₂ S)	0.05 ppm (70 µg/m ³)	½-hour average not to be exceeded over 2 times per year
	0.03 ppm (42 µg/m ³)	½-hour average not to be exceeded over 2 times in any 5 consecutive days
Sulfuric Acid (H ₂ SO ₄)	10 µg/m ³	24-hour average not to be exceeded more than once in any 90 consecutive days
	30 µg/m ³	1-hour average not to be exceeded more than once in any 2 consecutive days

Monitoring:

- 1) The permittee shall maintain and operate a continuous emission monitoring system (CEMS) in accordance with all the requirements of 40 CFR Part 75 to monitor SO₂ emissions. Results shall be recorded on an automated Data Acquisition Handling System (DAHS).
- 2) The permittee shall ensure that the CEMS meets the equipment, installation, and performance specifications in Appendix A to 40 CFR Part 75; and is maintained according to the quality assurance and quality control procedures in Appendix B to 40 CFR Part 75.
- 3) The permittee shall ensure that the CEMS is in operation and monitoring unit emissions at all times that the affected units (EU0050 through EU0070) combust any fuel except during periods of

calibration, quality assurance, or preventative maintenance, as well as, periods of repair, periods of backups of data from the DAHS or recertification.

- 4) The permittee shall ensure that the CEMS is capable of completing a minimum of one cycle of operation (sampling, analyzing, and data recording) for each successive 15-minute interval. The permittee shall reduce all SO₂ emissions data to hourly averages. Hourly averages shall be computed using at least one data point in each fifteen minute quadrant of an hour, where the unit combusted fuel during that quadrant of an hour. Notwithstanding this requirement, an hourly average may be computed from at least two data points separated by a minimum of 15 minutes (where the unit operates for more than one quadrant of an hour) if data are unavailable as a result of the performance of calibration, quality assurance, or preventive maintenance, or backups of data from the DAHS, or recertification. The permittee shall use all valid measurements or data points collected during an hour to calculate the hourly averages. All data points collected during an hour shall be, to the extent practicable, evenly spaced over the hour.
- 5) The permittee shall prepare and maintain a monitoring plan in accordance with §75.53. A monitoring plan shall contain sufficient information on the CEMS to demonstrate that all SO₂ emissions are monitored and reported.
- 6) Whenever the permittee makes a replacement, modification, or change in the certified CEMS, including a change in the automated DAHS or in the flue gas handling system, that affects information reported in the monitoring, then the permittee shall update the monitoring plan, by the applicable deadline specified in §75.62.

Recordkeeping:

- 1) The permittee shall maintain a file on-site of all measurements, data, reports, and other information required by §75.53, §75.57 and §75.59. Records include the following:
 - a) Total fuel consumed during the control period;
 - b) The total heat input for each emissions unit during the control period;
 - c) Reports of all stack testing conducted;
 - d) All other data collected by a CEMS necessary to convert the monitoring data to the units of the applicable emission limitation;
 - e) All performance evaluations conducted in the past year;
 - f) All monitoring device calibration checks;
 - g) All monitoring system, monitoring device and performance testing measurements;
 - h) Records of adjustments and maintenance performed on monitoring systems and devices; and
 - i) A log identifying each period during which the CEMS or alternate procedure was inoperative, except for zero and span checks, and the nature of the repairs and adjustments performed to make the system operative.
- 2) These records shall be made available immediately to any Missouri Department of Natural Resources' personnel upon request.
- 3) These records shall be kept in a form suitable for inspection for at least five years.

Reporting:

- 1) The permittee shall submit all quarterly reports required by Part 75. The reports are due within 30 days after the end of each calendar quarter. The quarterly reports must include the following essential information:
 - a) Facility information in accordance with §75.64(a)(1);
 - b) Hourly and cumulative emissions data;
 - c) Hourly unit operating information (e.g., load, heat input rate, operating time, etc.);

- d) Monitoring plan information;
 - e) Results of required quality-assurance tests (e.g., daily calibrations, linearity checks, RATAs, etc.); and
 - f) Certification statements from the Designated Representative or Authorized Account Representative (or the Alternate Representative), attesting to the completeness and accuracy of the data.
- 2) The permittee shall report to the Air Pollution Control Program Enforcement Section, P.O. Box 176, Jefferson City, MO 65102, no later than ten days after any deviations/exceedances of this permit condition.

PERMIT CONDITION (EU0050 THROUGH EU0070)-004

10 CSR 10-6.270 Acid Rain Source Permits Required

Emission Limitation:

The permittee shall obtain an Acid Rain Source Permit for EU0050 through EU0070 pursuant to Title IV of the Clean Air Act.

A Phase II permit (Missouri Department of Natural Resources project EX095-0031-021, ORIS Code 2094) was issued to the permittee on February 9, 1998, with effective dates from January 1, 2000 to December 31, 2004. Sulfur dioxide (SO₂) limitations are referenced in this existing Title IV: Phase II Acid Rain Permit for the installation. The permittee submitted a renewal application on June 25, 2004, under 10 CSR 10-6.270, *Acid Rain Source Permits Required*. No changes to the installation's status were reflected in this renewal application.

Monitoring/Recordkeeping:

The permittee shall retain the most current acid rain permit issued to this installation on-site and shall immediately make such permit available to any Missouri Department of Natural Resources' personnel upon request.

Reporting:

Annual Compliance Certification

PERMIT CONDITION (EU0050 THROUGH EU0070)-005

10 CSR 10-6.350 Emission Limitations and Emissions Trading of Oxides of Nitrogen

Emission Limitations:

- 1) The permittee shall limit emissions of NO_x to the rate of 0.68 lbs. NO_x /million British thermal units (MMBtu) of heat input during any control period in a year during which the three boilers (EU0050 through EU0070) together burn tire-derived fuel in a quantity of at least three hundred thousand (300,000) passenger tire equivalents. A control period is the period beginning May 1 of a calendar year and ending on September 30 of the same year.
- 2) The permittee shall limit emissions of NO_x to the rate of 0.35 lbs. NO_x /million British thermal units (MMBtu) of heat input during any control period in a year during which the three boilers (EU0050 through EU0070) together do not burn tire-derived fuel in a quantity of at least three hundred thousand (300,000) passenger tire equivalents. A control period is the period beginning May 1 of a calendar year and ending on September 30 of the same year.
- 3) In lieu of complying with the above emission limit, the permittee may comply through the NO_x emissions trading program under 10 CSR 10-6.350(3)(B).

- a) Compliance with this rule shall not relieve the permittee of the responsibility to comply fully with applicable provisions of the Air Conservation Law and rules or any other requirements under local, state or federal law. Specifically, compliance with 10 CSR 10-6.350 shall not violate the permit conditions previously established under 10 CSR 10-6.060 or 10 CSR 10-6.065.

Monitoring:

- 1) Compliance shall be measured during the control period.
- 2) All valid data shall be used for calculating NO_x emissions rates.
- 3) Any coal-affected unit shall install, certify, operate, maintain, and quality assure a NO_x and diluent CEMS pursuant to the requirements in 40 CFR Part 75;

Recordkeeping:

- 1) The permittee shall maintain records of the following:
 - a) Total fuel consumed during the control period;
 - b) The total heat input for each emissions unit during the control period;
 - c) Reports of all stack testing conducted to meet the requirements of this rule;
 - d) All other data collected by a CEMS necessary to convert the monitoring data to the units of the applicable emission limitation;
 - e) All performance evaluations conducted in the past year;
 - f) All monitoring device calibration checks;
 - g) All monitoring system, monitoring device and performance testing measurements;
 - h) Records of adjustments and maintenance performed on monitoring systems and devices; and
 - i) A log identifying each period during which the CEMS or alternate procedure was inoperative, except for zero and span checks, and the nature of the repairs and adjustments performed to make the system operative.
- 2) These records shall be made available immediately to any Missouri Department of Natural Resources' personnel upon request.
- 3) All records shall be kept on-site for a period of five years.

Reporting:

- 1) A compliance certification report for each affected unit shall be submitted to the Missouri Department of Natural Resources by October 31 following each control period. The report shall include:
 - a) The owner and operator;
 - b) The NO_x authorized account representative;
 - c) NO_x unit name, compliance and overdraft account numbers;
 - d) NO_x emission rate limitation (lb/MMBtu);
 - e) Actual NO_x emission rate (lb/MMBtu) for the control period;
 - f) Actual heat input (MMBtu) for the control period. The unit's total heat input for the control period in each year will be determined in accordance with the test methods and monitoring requirements;
 - g) Actual NO_x mass emissions (tons) for the control period.
- 2) The NO_x authorized account representatives seeking the recording of a NO_x allowance transfer shall submit the transfer request to the director. To be considered correctly submitted, the NO_x allowance transfer shall include the following elements in a format specified by the director:
 - a) The numbers identifying both the transferor and transferee accounts;

- b A specification by serial number of each NO_x allowance to be transferred; and
 - c) The printed name and signature of the NO_x authorized account representative of the transferor account and the date signed.
- 3) Any unit with valid CEMS data for the control period must use that data to determine compliance with the provisions of 10 CSR 10-6.350.
- 4) The permittee shall report any deviations/exceedances of this permit condition using the semi-annual monitoring report and annual compliance certification to the Air Pollution Control Program Enforcement Section, P.O. Box 176, Jefferson City, MO 65102, as required by Section V of this permit.

EU0080 THROUGH EU0110 – EMERGENCY GENERATOR, WELDING MACHINES, AND BACK-UP DIESEL FIRE PUMP

Emission Unit	Description	Manufacturer/Model #	2004 EIQ Reference #
EU0080	No. 2 distillate-fired emergency generator; MHDR 4.39 MMBtu/hr; installed 1969	Fairbanks	EP-07
EU0090	Gasoline fired, portable welding machine; MHDR 0.077 MMbtu/hr; installed 2001	Onan	EP-08
EU0100	Gasoline fired, portable welding machine; MHDR 0.14 MMbtu/hr; installed 2001	Airco	EP-09
EU0110	Backup diesel fired fire pump; MHDR 0.847 MMBtu/hr; installed 1988	Caterpillar	EP-11

PERMIT CONDITION (EU0080 THROUGH EU0110)-001

10 CSR 10-6.260 Restriction of Emission of Sulfur Compounds

Emission Limitation:

- 1) Emissions from EU0080 shall not contain more than two thousand parts per million by volume (2000 ppmv) of sulfur dioxide.
- 2) Emissions from EU0090 through EU0110 shall not contain more than five hundred parts per million by volume (500 ppmv) of sulfur dioxide.
- 3) Stack gasses from EU0080 shall not contain more than seventy milligrams (70 mg) per cubic meter of sulfuric acid or sulfur trioxide or any combination of those gases averaged on any consecutive three hour time period.
- 4) Stack gasses from EU0090 through EU0110 shall not contain more than thirty-five milligrams (35 mg) per cubic meter of sulfuric acid or sulfur trioxide or any combination of those gases averaged on any consecutive three hour time period.
- 5) No person shall cause or permit the emission of sulfur compounds from any source which causes or contributes to concentrations exceeding those specified in 10 CSR 10-6.010 Ambient Air Quality Standards.

Pollutant	Concentration by Volume	Remarks
Sulfur Dioxide (SO ₂)	0.03 parts per million (ppm) (80 micrograms per cubic meter (µg/m ³))	Annual arithmetic mean
	0.14 ppm (365 µg/m ³)	24-hour average not to be exceeded more than once per year
	0.5 ppm (1300 µg/m ³)	3-hour average not to be exceeded more than once per year
Hydrogen Sulfide (H ₂ S)	0.05 ppm (70 µg/m ³)	½-hour average not to be exceeded over 2 times per year
	0.03 ppm (42 µg/m ³)	½-hour average not to be exceeded over 2 times in any 5 consecutive days
Sulfuric Acid (H ₂ SO ₄)	10 µg/m ³	24-hour average not to be exceeded more than once in any 90 consecutive days
	30 µg/m ³	1-hour average not to be exceeded more than once in any 2 consecutive days

Operational Limitation/Equipment Specification:

Emission unit EU0080 shall be limited to burning Number 2 diesel fuel oil with a sulfur content of 1.5 percent (%) by weight or less.

Monitoring/Recordkeeping:

- 1) The permittee shall maintain an accurate record of the sulfur content of fuel used in EU0080. Fuel purchase receipts, analyzed samples or certifications that verify the fuel type and sulfur content will be acceptable.
- 2) The permittee is assumed to be in compliance with this regulation as long as emission unit EU0080 burns fuel oil with a sulfur content of 1.5 % by weight or less. Calculations demonstrating this are in Attachment E. The permittee shall keep this attachment with this permit.
- 3) These records shall be made available immediately to any Missouri Department of Natural Resources' personnel upon request.
- 4) All records shall be maintained for five years.

Reporting:

Reports of any deviations from monitoring, recordkeeping and reporting requirements of this permit condition shall be submitted semiannually, in the semi-annual monitoring report and annual compliance certification, as required by Section V of this permit.

EU0120 AND EU0130 – PARTS WASHER AND SPRAY PAINT BOOTH			
Emission Unit	Description	Manufacturer/Model #	2004 EIQ Reference #
EU0120	Parts Washer	Safety Kleen	EP-10
EU0130	Spray Paint Booth	NA	EP-12

PERMIT CONDITION (EU0120 and EU0130)-001

10 CSR 10-6.060 Construction Permits Required
Construction Permit #0897-025 Issued 8/04/1997

Emission Limitation:

The permittee shall not emit more than 12.0 tons of volatile organic compounds (VOC) during any consecutive 12-month period from the following: Safety Kleen parts washer identified as EU0120 and 2) spray paint booth identified as EU0130. [Special Condition 1]

Recordkeeping:

The permittee shall maintain an accurate monthly record of VOC emissions from the Safety Kleen parts washer identified as EU0120 and the spray paint booth identified as EU0130. These records shall include monthly and cumulative 12-month totals. These records shall be kept on-site for the most recent 60-month period of operation and be made immediately available to Missouri Department of Natural Resources' personnel upon request. These records shall be on Attachment D or on any substantially conforming form that contains the same information. [Special Condition 2]

Reporting:

The permittee shall report to the Air Pollution Control Program, Enforcement Section, P.O. Box 176, Jefferson City, MO 65102, no later than ten days after the end of each month, if the 12-month cumulative total records (Condition Number 2) show that the Source exceeded the limitation of Condition Number 1. [Special Condition 3]

PERMIT CONDITION EU0120-002

10 CSR 10-2.210 Control of Emissions from Solvent Metal Cleaning

Equipment and Operating Parameters:

- 1) The permittee shall not allow the operation of any cold cleaner using a cold cleaning solvent with a vapor pressure greater than 1.0 millimeters of Mercury (0.019 psi) at twenty degrees Celsius (20°C).
- 2) Each cold cleaner shall have:
 - a) A cover which will prevent the escape of solvent vapors from the solvent bath while in the closed position, or an enclosed reservoir that will prevent the escape of solvent vapors from the solvent bath whenever parts are not being processed in the cleaner.
 - b) When one or more of the following conditions exist, the design of the cover shall be such that it can be easily operated with one hand such that minimal disturbing of the solvent vapors in the tank occurs. (For covers larger than ten square feet, this shall be accomplished by either mechanical assistance such as spring loading or counterweighing or by power systems):
 - i) The solvent volatility is greater than 0.3 psi measured at one hundred degrees Fahrenheit (100°F), such as in mineral spirits;
 - ii) The solvent is agitated; or
 - iii) The solvent is heated.
 - c) An external drainage installation which provides for the solvent to drain back into the solvent bath.
 - d) If an internal drainage facility cannot fit into the cleaning system and the solvent volatility is less than 0.6 psi measured at one hundred degrees Fahrenheit (100°F), then the cold cleaner shall have an external drainage facility which provides for the solvent to drain back into the solvent bath.
 - e) Solvent sprays, if used, shall be a solid fluid stream and operate at a pressure which does not cause any splashing above or beyond the freeboard.

- f) A permanent conspicuous label summarizing the operating procedures shall be affixed to the equipment.
- g) Any cold cleaner which uses a solvent that has a solvent volatility greater than 0.6 psi measured at one hundred degrees Fahrenheit (100°F) or heated above one hundred twenty degrees Fahrenheit (120°F) must use one of the following control devices:
 - i) A freeboard ratio of at least 0.75;
 - ii) Water cover (solvent must be insoluble in and heavier than water); or
 - iii) Other control systems with a mass balance demonstrated overall VOC emissions reduction efficiency greater than or equal to sixty-five percent (65%). These control systems must receive approval from the director prior to their use
- 3) Each cold cleaner shall be operated as follows:
 - a) Cold cleaner covers shall be closed whenever parts are not being handled in the cleaners or the solvent must drain into an enclosed reservoir.
 - b) Cleaned parts shall be drained in the freeboard area for at least fifteen (15) seconds or until dripping ceases, whichever is longer.
 - c) Whenever a cold cleaner fails to perform within the operating parameters established for it by this regulation, the unit shall be shut down immediately and shall remain shut down until trained service personnel are able to restore operation within the established parameters.
 - d) Solvent leaks shall be repaired immediately or the degreaser shall be shut down until the leaks are repaired.
 - e) Any waste material removed from a cold cleaner shall be disposed of by one of the following methods and in accordance with the Missouri Hazardous Waste Management Commission rules codified at 10 CSR 10-25, as applicable:
 - i) Reduction of the waste material to less than twenty percent (20%) VOC solvent by distillation and proper disposal of the still bottom waste, or
 - ii) Stored in closed containers for transfer to a contract reclamation service or a disposal installation approved by the director.
- 4) Waste solvent shall be stored in covered containers only.
- 5) Operators must be trained as follows:
 - a) Only persons trained in at least the operational and equipment requirements specified in this regulation for their particular solvent metal cleaning process shall be permitted to operate the equipment,
 - b) The supervisor of any person who operates a solvent metal cleaning process shall receive equal or greater operational training than the operator,
 - c) Refresher training shall be given to all solvent metal cleaning equipment operators at least once each twelve month period.
 - d) A record shall be kept of solvent metal cleaning training for each employee.

Monitoring:

The permittee shall monitor the throughputs of the solvents monthly and maintain material safety data sheets (MSDS) of the cleanup solvents used at the installation. The permittee may use electronic database sources for MSDS storage and retrieval.

Recordkeeping

- 1) The permittee shall keep monthly inventory records of solvent types and amounts purchased and solvent consumption. These records shall include all types and amounts of solvent containing waste

- material transferred to either a contract reclamation service or to a disposal installation and all amounts distilled on the premises. These records also shall include maintenance and repair logs.
- 2) The permittee shall maintain records which include for each purchase of cold cleaning solvent:
 - a) The name and address of the solvent supplier;
 - b) The date of purchase;
 - c) The type of solvent; and
 - d) The vapor pressure of the solvent in mmHg at twenty degrees Celsius (20°C) (sixty-eight degrees Fahrenheit (68°F)).
 - 3) A record shall be kept of solvent metal cleaning training for each employee.
 - 4) These records shall be made available immediately for inspection to any Missouri Department of Natural Resources' personnel upon request.
 - 5) All records shall be maintained for five years.

Reporting:

The permittee shall report to the Air Pollution Control Enforcement Section, P.O. Box 176, Jefferson City, MO 65102, no later than ten days after any deviation from or exceedance of any of the terms imposed by this regulation, or any malfunction which causes a deviation from or exceedance of this regulation.

PERMIT CONDITION EU0130-002

10 CSR 10-2.210 Control of Emissions from Solvent Metal Cleaning

Equipment and Operation Parameters:

- 1) Paint spray guns and nozzles only may be cleaned in solvent-based materials capable of stripping hardened paint, provided the solvent reservoir (not to exceed five gallons in size) is kept tightly covered at all times except when being accessed.
- 2) A permanent conspicuous label summarizing the operating procedures for cleaning the paint gun and nozzle shall be affixed to the paint booth.
- 3) Whenever cleaning of the paint gun and nozzle fails to perform within the operating parameters established for it by this rule, the cleaning operation shall be shut down immediately and shall remain shut down until trained service personnel are able to restore operation within the established parameters.
- 4) Solvent leaks shall be repaired immediately or cleaning operations shall be shut down until the leaks are repaired.
- 5) Any waste material removed from cleaning operation shall be disposed of by one of the following methods and in accordance with the Missouri Hazardous Waste Management Commission rules codified at 10 CSR 10-25, as applicable:
 - a) Reduction of the waste material to less than twenty percent (20%) VOC solvent by distillation and proper disposal of the still bottom waste, or
 - b) Stored in closed containers for transfer to a contract reclamation service or a disposal facility approved by the director.
- 6) Waste solvent shall be stored in covered containers only.
- 7) Operators must be trained as follows:
 - a) Only persons trained in at least the operational and equipment requirements specified in this rule for their particular solvent metal cleaning process shall be permitted to operate the equipment,

- b) The supervisor of any person who operates a solvent metal cleaning process shall receive equal or greater operational training than the operator, Refresher training shall be given to all solvent metal cleaning equipment operators at least once each 12 month period.

Monitoring/Recordkeeping:

- 1) The permittee shall keep monthly inventory records of solvent types and amounts purchased and solvent consumption. These records shall include all types and amounts of solvent containing waste material transferred to either a contract reclamation service or to a disposal installation and all amounts distilled on the premises. These records also shall include maintenance and repair logs.
- 2) The permittee shall maintain records which include for each purchase of cold cleaning solvent:
 - a) The name and address of the solvent supplier;
 - b) The date of purchase;
 - c) The type of solvent; and
 - d) The vapor pressure of the solvent in mmHg at twenty degrees Celsius (20°C) (sixty-eight degrees Fahrenheit (68°F)).
- 3) A record shall be kept of solvent metal cleaning training for each employee.
- 4) These records shall be made available immediately for inspection to any Missouri Department of Natural Resources' personnel upon request.
- 5) All records shall be maintained for five years.

Reporting:

The permittee shall report to the Air Pollution Control Program, Enforcement Section, P.O. Box 176, Jefferson City, MO 65102, no later than ten days after any deviation from or exceedance of any of the terms imposed by this regulation, or any malfunction which causes a deviation from or exceedance of this regulation.

IV. Core Permit Requirements

The installation shall comply with each of the following requirements. Consult the appropriate sections in the Code of Federal Regulations (CFR) and Code of State Regulations (CSR) for the full text of the applicable requirements. All citations, unless otherwise noted, are to the regulations in effect as of the date that this permit is issued.

10 CSR 10-6.050 Start-up, Shutdown and Malfunction Conditions
--

- 1) In the event of a malfunction, which results in excess emissions that exceed one hour, the permittee shall submit to the director within two business days, in writing, the following information:
 - a) Name and location of installation;
 - b) Name and telephone number of person responsible for the installation;
 - c) Name of the person who first discovered the malfunction and precise time and date that the malfunction was discovered.
 - d) Identity of the equipment causing the excess emissions;
 - e) Time and duration of the period of excess emissions;
 - f) Cause of the excess emissions;
 - g) Air pollutants involved;
 - h) Best estimate of the magnitude of the excess emissions expressed in the units of the applicable requirement and the operating data and calculations used in estimating the magnitude;
 - i) Measures taken to mitigate the extent and duration of the excess emissions; and
 - j) Measures taken to remedy the situation that caused the excess emissions and the measures taken or planned to prevent the recurrence of these situations.
- 2) The permittee shall submit the paragraph 1 information list to the director in writing at least ten days prior to any maintenance, start-up or shutdown, which is expected to cause an excessive release of emissions that exceed one hour. If notice of the event cannot be given ten days prior to the planned occurrence, it shall be given as soon as practicable prior to the release. If an unplanned excess release of emissions exceeding one hour occurs during maintenance, start-up or shutdown, the director shall be notified verbally as soon as practical during normal working hours and no later than the close of business of the following working day. A written notice shall follow within ten working days.
- 3) Upon receipt of a notice of excess emissions issued by an agency holding a certificate of authority under section 643.140, RSMo, the permittee may provide information showing that the excess emissions were the consequence of a malfunction, start-up or shutdown. The information, at a minimum, should be the paragraph 1 list and shall be submitted not later than 15 days after receipt of the notice of excess emissions. Based upon information submitted by the permittee or any other pertinent information available, the director or the commission shall make a determination whether the excess emissions constitute a malfunction, start-up or shutdown and whether the nature, extent and duration of the excess emissions warrant enforcement action under section 643.080 or 643.151, RSMo.
- 4) Nothing in this rule shall be construed to limit the authority of the director or commission to take appropriate action, under sections 643.080, 643.090 and 643.151, RSMo to enforce the provisions of the Air Conservation Law and the corresponding rule.
- 5) Compliance with this rule does not automatically absolve the permittee of liability for the excess emissions reported.

10 CSR 10-6.060 Construction Permits Required

The permittee shall not commence construction, modification, or major modification of any installation subject to this rule, begin operation after that construction, modification, or major modification, or begin operation of any installation which has been shut down longer than five years without first obtaining a permit from the permitting authority.

10 CSR 10-6.065 Operating Permits

The permittee shall file a complete application for renewal of this operating permit at least six months before the date of permit expiration. In no event shall this time be greater than eighteen months. [10 CSR 10-6.065(6)(B)1.A(V)] The permittee shall retain the most current operating permit issued to this installation on-site. [10 CSR 10-6.065(6)(C)1.C(II)] The permittee shall immediately make such permit available to any Missouri Department of Natural Resources personnel upon request. [10 CSR 10-6.065(6)(C)3.B]

10 CSR 10-6.110 Submission of Emission Data, Emission Fees and Process Information

- 1) The permittee shall complete and submit an Emission Inventory Questionnaire (EIQ) in accordance with the requirements outlined in this rule.
- 2) The permittee shall pay an annual emission fee per ton of regulated air pollutant emitted according to the schedule in the rule. This fee is an emission fee assessed under authority of RSMo. 643.079 to satisfy the requirements of the Federal Clean Air Act, Title V.
- 3) The fees shall be due April 1 each year for emissions produced during the previous calendar year. The fees shall be payable to the Department of Natural Resources and shall be accompanied by the Emissions Inventory Questionnaire (EIQ) form or equivalent approved by the director.

10 CSR 10-6.130 Controlling Emissions During Episodes of High Air Pollution Potential

This rule specifies the conditions that establish an air pollution alert (yellow/orange/red/purple), or emergency (maroon) and the associated procedures and emission reduction objectives for dealing with each. The permittee shall submit an appropriate emergency plan if required by the Director.

10 CSR 10-6.150 Circumvention

The permittee shall not cause or permit the installation or use of any device or any other means which, without resulting in reduction in the total amount of air contaminant emitted, conceals or dilutes an emission or air contaminant which violates a rule of the Missouri Air Conservation Commission.

10 CSR 10-6.170 Restriction of Particulate Matter to the Ambient Air Beyond the Premises of Origin

- 1) The permittee shall not cause or allow to occur any handling, transporting or storing of any material; construction, repair, cleaning or demolition of a building or its appurtenances; construction or use of a road, driveway or open area; or operation of a commercial or industrial installation without applying reasonable measures as may be required to prevent, or in a manner which allows or may allow, fugitive particulate matter emissions to go beyond the premises of origin in quantities that the particulate matter may be found on surfaces beyond the property line of origin. The nature or origin of the particulate matter shall be determined to a reasonable degree of certainty by a technique proven to be accurate and approved by the director.
- 2) The permittee shall not cause nor allow to occur any fugitive particulate matter emissions to remain visible in the ambient air beyond the property line of origin.

- 3) Should it be determined that noncompliance has occurred, the director may require reasonable control measures as may be necessary. These measures may include, but are not limited to, the following:
 - a) Revision of procedures involving construction, repair, cleaning and demolition of buildings and their appurtenances that produce particulate matter emissions;
 - b) Paving or frequent cleaning of roads, driveways and parking lots;
 - c) Application of dust-free surfaces;
 - d) Application of water; and
 - e) Planting and maintenance of vegetative ground cover.

10 CSR 10-6.180 Measurement of Emissions of Air Contaminants

- 1) The director may require any person responsible for the source of emission of air contaminants to make or have made tests to determine the quantity or nature, or both, of emission of air contaminants from the source. The director may specify testing methods to be used in accordance with good professional practice. The director may observe the testing. Qualified personnel shall perform all tests.
- 2) The director may conduct tests of emissions of air contaminants from any source. Upon request of the director, the person responsible for the source to be tested shall provide necessary ports in stacks or ducts and other safe and proper sampling and testing facilities, exclusive of instruments and sensing devices as may be necessary for proper determination of the emission of air contaminants.
- 3) The director shall be given a copy of the test results in writing and signed by the person responsible for the tests.

10 CSR 10-2.100 Open Burning Restrictions

- 1) The permittee shall not conduct, cause, permit or allow a salvage operation, the disposal of trade wastes or burning of refuse by open burning.
- 2) Exception - Open burning of trade waste or vegetation may be permitted only when it can be shown that open burning is the only feasible method of disposal or an emergency exists which requires open burning.
- 3) Any person intending to engage in open burning shall file a request to do so with the director. The request shall include the following:
 - a) The name, address and telephone number of the person submitting the application; The type of business or activity involved; A description of the proposed equipment and operating practices, the type, quantity and composition of trade wastes and expected composition and amount of air contaminants to be released to the atmosphere where known;
 - b) The schedule of burning operations;
 - c) The exact location where open burning will be used to dispose of the trade wastes;
 - d) Reasons why no method other than open burning is feasible; and
 - e) Evidence that the proposed open burning has been approved by the fire control authority which has jurisdiction.
- 4) Upon approval of the open burning permit application by the director, the person may proceed with the operation under the terms of the open burning permit. Be aware that such approval shall not exempt Aquila – Sibley Generating Station from the provisions of any other law, ordinance or regulation.
- 5) The permittee shall maintain files with letters from the director approving the open burning operation and previous DNR inspection reports.

10 CSR 10-2.070 Restriction of Emission of Odors

No person may cause, permit or allow the emission of odorous matter in concentrations and frequencies or for durations that odor can be perceived when one volume of odorous air is diluted with seven volumes of odor-free air for two separate trials not less than 15 minutes apart within the period of one hour.

This requirement is not federally enforceable.

Title VI – 40 CFR Part 82 Protection of Stratospheric Ozone

- 1) The permittee shall comply with the standards for labeling of products using ozone-depleting substances pursuant to 40 CFR Part 82, Subpart E:
 - a) All containers in which a class I or class II substance is stored or transported, all products containing a class I substance, and all products directly manufactured with a class I substance must bear the required warning statement if it is being introduced into interstate commerce pursuant to §82.106.
 - b) The placement of the required warning statement must comply with the requirements pursuant to §82.108.
 - c) The form of the label bearing the required warning statement must comply with the requirements pursuant to §82.110.
 - d) No person may modify, remove, or interfere with the required warning statement except as described in §82.112.
- 2) The permittee shall comply with the standards for recycling and emissions reduction pursuant to 40 CFR Part 82, Subpart F, except as provided for motor vehicle air conditioners (MVACs) in Subpart B:
 - a) Persons opening appliances for maintenance, service, repair, or disposal must comply with the required practices pursuant to §82.156.
 - b) Equipment used during the maintenance, service, repair, or disposal of appliances must comply with the standards for recycling and recovery equipment pursuant to §82.158.
 - c) Persons performing maintenance, service, repair, or disposal of appliances must be certified by an approved technician certification program pursuant to §82.161.
 - d) Persons disposing of small appliances, MVACs, and MVAC-like appliances must comply with recordkeeping requirements pursuant to §82.166. ("MVAC-like" appliance as defined at §82.152).
 - e) Persons owning commercial or industrial process refrigeration equipment must comply with the leak repair requirements pursuant to §82.156.
 - f) Owners/operators of appliances normally containing 50 or more pounds of refrigerant must keep records of refrigerant purchased and added to such appliances pursuant to §82.166.
- 3) If the permittee manufactures, transforms, imports, or exports a class I or class II substance, the permittee is subject to all the requirements as specified in 40 CFR part 82, Subpart A, Production and Consumption Controls.
- 4) If the permittee performs a service on motor (fleet) vehicles when this service involves ozone-depleting substance refrigerant (or regulated substitute substance) in the motor vehicle air conditioner (MVAC), the permittee is subject to all the applicable requirements as specified in 40 CFR part 82, Subpart B, Servicing of Motor Vehicle Air conditioners. The term "motor vehicle" as used in Subpart B does not include a vehicle in which final assembly of the vehicle has not been completed. The term "MVAC" as used in Subpart B does not include the air-tight sealed refrigeration system used as refrigerated cargo, or system used on passenger buses using HCFC-22 refrigerant.

The permittee shall be allowed to switch from any ozone-depleting substance to any alternative that is listed in the Significant New Alternatives Program (SNAP) promulgated pursuant to 40 CFR part 82, Subpart G, Significant New Alternatives Policy Program. *Federal Only - 40 CFR part 82*

10 CSR 10-6.280 Compliance Monitoring Usage
--

- | |
|--|
| <ol style="list-style-type: none">1) The permittee is not prohibited from using the following in addition to any specified compliance methods for the purpose of submission of compliance certificates:<ol style="list-style-type: none">a) Monitoring methods outlined in 40 CFR Part 64;b) Monitoring method(s) approved for the permittee pursuant to 10 CSR 10-6.065, "Operating Permits", and incorporated into an operating permit; andc) Any other monitoring methods approved by the director.2) Any credible evidence may be used for the purpose of establishing whether a permittee has violated or is in violation of any such plan or other applicable requirement. Information from the use of the following methods is presumptively credible evidence of whether a violation has occurred by a permittee:<ol style="list-style-type: none">a) Monitoring methods outlined in 40 CFR Part 64;b) A monitoring method approved for the permittee pursuant to 10 CSR 10-6.065, "Operating Permits", and incorporated into an operating permit; andc) Compliance test methods specified in the rule cited as the authority for the emission limitations.3) The following testing, monitoring or information gathering methods are presumptively credible testing, monitoring, or information gathering methods:<ol style="list-style-type: none">a) Applicable monitoring or testing methods, cited in:<ol style="list-style-type: none">i) 10 CSR 10-6.030, "Sampling Methods for Air Pollution Sources";ii) 10 CSR 10-6.040, "Reference Methods";iii) 10 CSR 10-6.070, "New Source Performance Standards";iv) 10 CSR 10-6.080, "Emission Standards for Hazardous Air Pollutants"; orb) Other testing, monitoring, or information gathering methods, if approved by the director, that produce information comparable to that produced by any method listed above. |
|--|

V. General Permit Requirements

The installation shall comply with each of the following requirements. Consult the appropriate sections in the Code of Federal Regulations (CFR) and Code of State Regulations (CSR) for the full text of the applicable requirements. All citations, unless otherwise noted, are to the regulations in effect as of the date that this permit is issued,

10 CSR 10-6.065(6)(C)1.B Permit Duration

This permit is issued for a term of five years, commencing on the date of issuance. This permit will expire at the end of this period unless renewed.

10 CSR 10-6.065(6)(C)1.C General Recordkeeping and Reporting Requirements

1) Recordkeeping

- a) All required monitoring data and support information shall be retained for a period of at least five years from the date of the monitoring sample, measurement, report or application.
- b) Copies of all current operating and construction permits issued to this installation shall be kept on-site for as long as the permits are in effect. Copies of these permits shall be made immediately available to any Missouri Department of Natural Resources' personnel upon request.

2) Reporting

- a) All reports shall be submitted to the Air Pollution Control Program, Enforcement Section, P. O. Box 176, Jefferson City, MO 65102.
- b) The permittee shall submit a report of all required monitoring by:
 - i) October 1st for monitoring which covers the January through June time period, and
 - ii) April 1st for monitoring which covers the July through December time period.
 - iii) Exception. Monitoring requirements which require reporting more frequently than semi annually shall report no later than 30 days after the end of the calendar quarter in which the measurements were taken.
- c) Each report shall identify any deviations from emission limitations, monitoring, recordkeeping, reporting, or any other requirements of the permit, this includes deviations or Part 64 exceedances.
- d) Submit supplemental reports as required or as needed. Supplemental reports are required no later than ten days after any exceedance of any applicable rule, regulation or other restriction. All reports of deviations shall identify the cause or probable cause of the deviations and any corrective actions or preventative measures taken.
 - i) Notice of any deviation resulting from an emergency (or upset) condition as defined in paragraph (6)(C)7.A of 10 CSR 10-6.065 (Emergency Provisions) shall be submitted to the permitting authority either verbally or in writing within two working days after the date on which the emission limitation is exceeded due to the emergency, if the permittee wishes to assert an affirmative defense. The affirmative defense of emergency shall be demonstrated through properly signed, contemporaneous operating logs, or other relevant evidence that indicate an emergency occurred and the permittee can identify the cause(s) of the emergency. The permitted installation must show that it was operated properly at the time and that during the period of the emergency the permittee took all reasonable steps to minimize levels of emissions that exceeded the emission standards or requirements in the permit. The notice must contain a description of the emergency, the steps taken to mitigate emissions, and the corrective actions taken.
 - ii) Any deviation that poses an imminent and substantial danger to public health, safety or the environment shall be reported as soon as practicable.

- iii) Any other deviations identified in the permit as requiring more frequent reporting than the permittee's semiannual report shall be reported on the schedule specified in this permit, and no later than ten days after any exceedance of any applicable rule, regulation, or other restriction.
- e) Every report submitted shall be certified by the responsible official, except that, if a report of a deviation must be submitted within ten days after the deviation, the report may be submitted without a certification if the report is resubmitted with an appropriate certification within ten days after that, together with any corrected or supplemental information required concerning the deviation.
- f) The permittee may request confidential treatment of information submitted in any report of deviation.

10 CSR 10-6.065(6)(C)1.D Risk Management Plan Under Section 112(r)

The permittee shall comply with the requirements of 40 CFR Part 68, Accidental Release Prevention Requirements. If the permittee has more than a threshold quantity of a regulated substance in process, as determined by 40 CFR Section 68.115, the permittee shall submit a Risk Management Plan in accordance with 40 CFR Part 68 no later than the latest of the following dates:

- 1) June 21, 1999;
- 2) Three years after the date on which a regulated substance is first listed under 40 CFR Section 68.130; or
- 3) The date on which a regulated substance is first present above a threshold quantity in a process.

10 CSR 10-6.065(6)(C)1.F Severability Clause

In the event of a successful challenge to any part of this permit, all uncontested permit conditions shall continue to be in force. All terms and conditions of this permit remain in effect pending any administrative or judicial challenge to any portion of the permit. If any provision of this permit is invalidated, the permittee shall comply with all other provisions of the permit.

10 CSR 10-6.065(6)(C)1.G General Requirements

- 1) The permittee must comply with all of the terms and conditions of this permit. Any noncompliance with a permit condition constitutes a violation and is grounds for enforcement action, permit termination, permit revocation and re-issuance, permit modification or denial of a permit renewal application.
- 2) The permittee may not use as a defense in an enforcement action that it would have been necessary for the permittee to halt or reduce the permitted activity in order to maintain compliance with the conditions of the permit
- 3) The permit may be modified, revoked, reopened, reissued or terminated for cause. Except as provided for minor permit modifications, the filing of an application or request for a permit modification, revocation and reissuance, or termination, or the filing of a notification of planned changes or anticipated noncompliance, does not stay any permit condition.
- 4) This permit does not convey any property rights of any sort, nor grant any exclusive privilege.
- 5) The permittee shall furnish to the Air Pollution Control Program, upon receipt of a written request and within a reasonable time, any information that the Air Pollution Control Program reasonably may require to determine whether cause exists for modifying, reopening, reissuing or revoking the permit or to determine compliance with the permit. Upon request, the permittee also shall furnish to the Air Pollution Control Program copies of records required to be kept by the permittee. The

permittee may make a claim of confidentiality for any information or records submitted pursuant to 10 CSR 10-6.065(6)(C)1.

10 CSR 10-6.065(5)(C)1.H Incentive Programs Not Requiring Permit Revisions

No permit revision will be required for any installation changes made under any approved economic incentive, marketable permit, emissions trading, or other similar programs or processes provided for in this permit.

10 CSR 10-6.065(5)(C)1.I.C Reasonably Anticipated Operating Scenarios

None.

10 CSR 10-6.065(5)(C)1.I.E Title IV Allowances

This permit shall prohibit emissions which exceed any allowances the installation holds under Title IV of the Clean Air Act.

- 1) No permit revisions shall be required for increases in emissions that are authorized by allowances acquired pursuant to the acid rain program if the increases do not require a permit revision under any other applicable requirement.
- 2) Limits cannot be placed on the number of allowances that may be held by an installation. The installation may not use these allowances, however, as a defense for noncompliance with any other applicable requirement.
- 3) Any allowances held by a Title IV installation shall be accounted for according to procedures established in rules promulgated under Title IV of the Clean Air Act.
- 4) Aquila – Sibley Generating Station was issued a Title IV: Phase II Acid Rain Permit on February 9, 1998, with effective dates from January 1, 2000 through December 31, 2004. The Missouri Department of Natural Resources project number of this permit is EX095-0031-021 and its ORIS code is 2094. Aquila – Sibley Generating Station applied for a renewal of this permit on June 24, 2004 which reflected no change in the installation's status.

10 CSR 10-6.065(6)(C)3 Compliance Requirements

- 1) Any document (including reports) required to be submitted under this permit shall contain a certification signed by the responsible official.
- 2) Upon presentation of credentials and other documents as may be required by law, the permittee shall allow authorized officials of the Missouri Department of Natural Resources, or their authorized agents, to perform the following (subject to the installation's right to seek confidential treatment of information submitted to, or obtained by, the Air Pollution Control Program):
 - a) Enter upon the premises where a permitted installation is located or an emissions-related activity is conducted, or where records must be kept under the conditions of this permit;
 - b) Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;
 - c) Inspect, at reasonable times and using reasonable safety practices, any facilities, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under this permit; and
 - d) As authorized by the Missouri Air Conservation Law, Chapter 643, RSMo or the Act, sample or monitor, at reasonable times, substances or parameters for the purpose of assuring compliance with the terms of this permit, and all applicable requirements as outlined in this permit.

- 3) All progress reports required under an applicable schedule of compliance shall be submitted semiannually (or more frequently if specified in the applicable requirement). These progress reports shall contain the following:
 - a) Dates for achieving the activities, milestones or compliance required in the schedule of compliance, and dates when these activities, milestones or compliance were achieved, and
 - b) An explanation of why any dates in the schedule of compliance were not or will not be met, and any preventative or corrective measures adopted.
- 4) The permittee shall submit an annual certification that it is in compliance with all of the federally enforceable terms and conditions contained in this permit, including emissions limitations, standards, or work practices. These certifications shall be submitted annually by April 1st, unless the applicable requirement specifies more frequent submission. These certifications shall be submitted to EPA Region VII, 901 North 5th Street, Kansas City, Kansas 66101, as well as the Air Pollution Control Program, Enforcement Section, P.O. Box 176, Jefferson City, MO 65102. All deviations and Part 64 exceedances and excursions must be included in the compliance certifications. The compliance certification shall include the following:
 - a) The identification of each term or condition of the permit that is the basis of the certification;
 - b) The current compliance status, as shown by monitoring data and other information reasonably available to the installation;
 - c) Whether compliance was continuous or intermittent;
 - d) The method(s) used for determining the compliance status of the installation, both currently and over the reporting period; and
 - e) Such other facts as the Air Pollution Control Program will require in order to determine the compliance status of this installation.

10 CSR 10-6.065(6)(C)6 Permit Shield

- 1) Compliance with the conditions of this permit shall be deemed compliance with all applicable requirements as of the date that this permit is issued, provided that:
 - a) The application requirements are included and specifically identified in this permit, or
 - b) The permitting authority, in acting on the permit revision or permit application, determines in writing that other requirements, as specifically identified in the permit, are not applicable to the installation, and this permit expressly includes that determination or a concise summary of it.
- 2) Be aware that there are exceptions to this permit protection. The permit shield does not affect the following:
 - a) The provisions of section 303 of the Act or section 643.090, RSMo concerning emergency orders,
 - b) Liability for any violation of an applicable requirement which occurred prior to, or was existing at, the time of permit issuance,
 - c) The applicable requirements of the acid rain program,
 - d) The authority of the Environmental Protection Agency and the Air Pollution Control Program of the Missouri Department of Natural Resources to obtain information, or
 - e) Any other permit or extra-permit provisions, terms or conditions expressly excluded from the permit shield provisions.

10 CSR 10-6.065(6)(C)7 Emergency Provisions

- 1) An emergency or upset as defined in 10 CSR 10-6.065(6)(C)7.A shall constitute an affirmative defense to an enforcement action brought for noncompliance with technology-based emissions

limitations. To establish an emergency- or upset-based defense, the permittee must demonstrate, through properly signed, contemporaneous operating logs or other relevant evidence, the following:

- a) That an emergency or upset occurred and that the permittee can identify the source of the emergency or upset,
 - b) That the installation was being operated properly,
 - c) That the permittee took all reasonable steps to minimize emissions that exceeded technology-based emissions limitations or requirements in this permit, and
 - d) That the permittee submitted notice of the emergency to the Air Pollution Control Program within two working days of the time when emission limitations were exceeded due to the emergency. This notice must contain a description of the emergency, any steps taken to mitigate emissions, and any corrective actions taken.
- 2) Be aware that an emergency or upset shall not include noncompliance caused by improperly designed equipment, lack of preventative maintenance, careless or improper operation, or operator error.

10 CSR 10-6.065(6)(C)8 Operational Flexibility

An installation that has been issued a Part 70 operating permit is not required to apply for or obtain a permit revision in order to make any of the changes to the permitted installation described below if the changes are not Title I modifications, the changes do not cause emissions to exceed emissions allowable under the permit, and the changes do not result in the emission of any air contaminant not previously emitted. The permittee shall notify the Air Pollution Control Program, Enforcement Section, P.O. Box 176, Jefferson City, MO 65102, as well as EPA Region VII, 901 North 5th Street, Kansas City, Kansas 66101, at least seven days in advance of these changes, except as allowed for emergency or upset conditions. Emissions allowable under the permit means a federally enforceable permit term or condition determined at issuance to be required by an applicable requirement that establishes an emissions limit (including a work practice standard) or a federally enforceable emissions cap that the source has assumed to avoid an applicable requirement to which the source would otherwise be subject.

- 1) Section 502(b)(10) changes. Changes that, under section 502(b)(10) of the Act, contravene an express permit term may be made without a permit revision, except for changes that would violate applicable requirements of the Act or contravene federally enforceable monitoring (including test methods), recordkeeping, reporting or compliance requirements of the permit.
 - a) Before making a change under this provision, The permittee shall provide advance written notice to the Air Pollution Control Program, Enforcement Section, P.O. Box 176, Jefferson City, MO 65102, as well as EPA Region VII, 901 North 5th Street, Kansas City, Kansas 66101, describing the changes to be made, the date on which the change will occur, and any changes in emission and any permit terms and conditions that are affected. The permittee shall maintain a copy of the notice with the permit, and the APCP shall place a copy with the permit in the public file. Written notice shall be provided to the EPA and the APCP as above at least seven days before the change is to be made. If less than seven days notice is provided because of a need to respond more quickly to these unanticipated conditions, the permittee shall provide notice to the EPA and the APCP as soon as possible after learning of the need to make the change.
 - b) The permit shield shall not apply to these changes.

10 CSR 10-6.065(6)(C)9 Off-Permit Changes

- 1) Except as noted below, the permittee may make any change in its permitted operations, activities or emissions that is not addressed in, constrained by or prohibited by this permit without obtaining a permit revision. Insignificant activities listed in the application, but not otherwise addressed in or

prohibited by this permit, shall not be considered to be constrained by this permit for purposes of the off-permit provisions of this section. Off-permit changes shall be subject to the following requirements and restrictions:

- a) The change must meet all applicable requirements of the Act and may not violate any existing permit term or condition; the permittee may not change a permitted installation without a permit revision if this change is subject to any requirements under Title IV of the Act or is a Title I modification;
- b) The permittee must provide written notice of the change to the Air Pollution Control Program, Enforcement Section, P.O. Box 176, Jefferson City, MO 65102, as well as EPA Region VII, 901 North 5th Street, Kansas City, Kansas 66101, no later than the next annual emissions report. This notice shall not be required for changes that are insignificant activities under 10 CSR 10-6.065(6)(B)3. This written notice shall describe each change, including the date, any change in emissions, pollutants emitted and any applicable requirement that would apply as a result of the change.
- c) The permittee shall keep a record describing all changes made at the installation that result in emissions of a regulated air pollutant subject to an applicable requirement and the emissions resulting from these changes; and
- d) The permit shield shall not apply to these changes.

10 CSR 10-6.020(2)(R)12 Responsible Official

“The application utilized in the preparation of this permit was signed by Glenn P. Keefe, Operating Vice President, Missouri Electric. On February 7, 2006, the Air Pollution Control Program was informed that Scott Heidtbrink, Vice President, Generation and Energy Resources is now the responsible official. If this person terminates employment, or is reassigned different duties such that a different person becomes the responsible person to represent and bind the installation in environmental permitting affairs, the owner or operator of this air contaminant source shall notify the Director of the Air Pollution Control Program of the change. Said notification shall be in writing and shall be submitted within 30 days of the change. The notification shall include the name and title of the new person assigned by the source owner or operator to represent and bind the installation in environmental permitting affairs. All representations, agreement to terms and conditions and covenants made by the former responsible person that were used in the establishment of limiting permit conditions on this permit will continue to be binding on the installation until such time that a revision to this permit is obtained that would change said representations, agreements and covenants.

10 CSR 10-6.065(6)(E)6 Reopening-Permit for Cause

This permit may be reopened for cause if:

- 1) The Missouri Department of Natural Resources (MDNR) receives notice from the Environmental Protection Agency (EPA) that a petition for disapproval of a permit pursuant to 40 CFR § 70.8(d) has been granted, provided that the reopening may be stayed pending judicial review of that determination,
- 2) MDNR or EPA determines that the permit contains a material mistake or that inaccurate statements were made which resulted in establishing the emissions limitation standards or other terms of the permit,
- 3) Additional applicable requirements under the Act become applicable to the installation; however, reopening on this ground is not required if—:
 - a) The permit has a remaining term of less than three years;

- b) The effective date of the requirement is later than the date on which the permit is due to expire;
or
- c) The additional applicable requirements are implemented in a general permit that is applicable to the installation and the installation receives authorization for coverage under that general permit,
- 4) The installation is an affected source under the acid rain program and additional requirements (including excess emissions requirements), become applicable to that source, provided that, upon approval by EPA, excess emissions offset plans shall be deemed to be incorporated into the permit;
or
- 5) MDNR or EPA determines that the permit must be reopened and revised to assure compliance with applicable requirements.

10 CSR 10-6.065(6)(E)1.C Statement of Basis
--

This permit is accompanied by a statement setting forth the legal and factual basis for the draft permit conditions (including references to applicable statutory or regulatory provisions). This Statement of Basis, while referenced by the permit, is not an actual part of the permit.

VI. Attachments

Attachments follow.

ATTACHMENT A

Method 22 (Outdoor) Observation Log

This recordkeeping sheet or an equivalent form may be used for the recordkeeping requirements of 10 CSR 10-6.220, *Restriction of Emission of Visible Air Contaminants*.

[illegible]

ATTACHMENT B

Inspection/Maintenance/Repair/Malfunction Log

This recordkeeping sheet or an equivalent form may be used to record inspections of equipment, maintenance, repairs and malfunctions.

[illegible]

ATTACHMENT C

Method 9 Opacity Emissions Observations

This recordkeeping sheet or an equivalent form may be used for the recordkeeping requirements of 10 CSR 10-6.220, *Restriction of Emission of Visible Air Contaminants*.

Method 9 Opacity Emissions Observations								
Company						Observer		
Location						Observer Certification Date		
Date						Emission Unit		
Time						Control Device		
Hour	Minute	Seconds				Steam Plume (check if applicable)		Comments
		0	15	30	45	Attached	Detached	
	0							
	1							
	2							
	3							
	4							
	5							
	6							
	7							
	8							
	9							
	10							
	11							
	12							
	13							
	14							
	15							
	16							
	17							
	18							
SUMMARY OF AVERAGE OPACITY								
Set Number	Time		Opacity					
	Start	End	Sum	Average				

Readings ranged from _____ to _____ % opacity.

Was the emission unit in compliance at the time of evaluation? _____
YES
NO
Signature of Observer

ATTACHMENT D

VOC Compliance Form

This recordkeeping sheet or an equivalent form may be used for the recordkeeping requirements of Permit Condition (EU0120 and EU0130)-001, which is based on Construction Permit #0897-025.

Material Used	1	2	3	4	5
	Amount of Material Used (gal or lb)	Material Density (lb/gal)	VOC Content (lb/gal)	VOC Weight Percent (%)	VOC Emissions (Tons)
				Total VOC Emissions This Month (tons)	
				12-Month Total of VOC Emissions (tons/yr)	

If Column 1 is in gallons, then Column 5 = Column 1 X Column 3 X 0.0005

If Column 1 is in pounds, then Column 5 = Column 1 X (Column 4 ÷ 100) X 0.0005

or Column 5 = (Column 1 ÷ Column 2) X Column 3 X 0.0005

Note: A 12-Month Total of VOC Emissions less than or equal to 12.0 tons/yr indicates compliance.

ATTACHMENT E

10 CSR 10-6.260 Compliance Demonstration

This attachment may be used to demonstrate that EU0090 through EU0110 are always in compliance with 10 CSR 10-6.260, *Restriction of Emission of Sulfur Compounds*, and that EU0080 is always in compliance with this rule when it is burning fuel with a sulfur content of 1.5% by weight or less.

General Equation

$\text{ppmv SO}_2 = \text{SO}_2 \text{ Emission Factor in lb/MMBtu} \times \text{F Factor in MMBtu/wscf} \times \text{Conversion Factor for lb/scf to ppm} \times \text{Conversion Factor for ppmw to ppmv}$

- 1) SO_2 emission factor for gasoline engines < 600 HP = 0.084 lb/MMBtu. (From AP-42 Table 3.3-1)
 SO_2 emission factor for diesel engines < 600 HP = 0.29 lb/MMBtu (From same table)
 SO_2 emission factor for diesel engines > 600 hp = 1.01 X % sulfur in lb/MMBtu = 1.01 X 1.5 lb/MMBtu = 1.52 lb/MMBtu (EPA AP-42 Table 3.4-1)
- 2) The F factor is the ratio of gas volume of products of combustion to the heat content of the fuel. For fuel oil the F factor = 1 MMBtu / 10,320 wscf (From Part 60 Appendix A Method 19 Table 19-2)
- 3) Conversion factor for lb/scf to ppm = ppm / 1.660E-7 lb/scf (From Part 60 Appendix A Method 19 Table 19-1)
- 4) Conversion factor for ppmw to ppmv = (28.8 / Molecular Weight of SO_2) ppmv / 1 ppmw = (28.8/64) ppmv / ppmw = 0.45 ppmv / ppmw (From AP-42 Appendix A)

Compliance Demonstration for EU0090 and EU0100 Welding Machines

$$\text{ppmv SO}_2 = \left(0.084 \frac{\text{lb}}{\text{MMBtu}} \right) \left(\frac{\text{MMBtu}}{10,320 \text{ ft}^3} \right) \left(\frac{\text{ppmw}}{1.667 \text{ E}^{-7} \text{ lb / scf}} \right) \left(0.45 \frac{\text{ppmv}}{\text{ppmw}} \right) = 2 \text{ ppmv}$$

22 ppmv SO_2 << 500 ppmv SO_2 , so EU0090 and EU0100 are always in compliance

Compliance Demonstration for EU0110 Back-up Diesel Fire Pump

$$\text{ppmv SO}_2 = \left(0.29 \frac{\text{lb}}{\text{MMBtu}} \right) \left(\frac{\text{MMBtu}}{10,320 \text{ ft}^3} \right) \left(\frac{\text{ppmw}}{1.667 \text{ E}^{-7} \text{ lb / scf}} \right) \left(0.45 \frac{\text{ppmv}}{\text{ppmw}} \right) = 76 \text{ ppmv}$$

76 ppmv SO_2 << 500 ppmv SO_2 , so EU0110 is always in compliance

Compliance Demonstration for EU080 Emergency Generator Burning 1.5% Sulfur Fuel

$$\text{ppmv SO}_2 = \left(1.52 \frac{\text{lb}}{\text{MMBtu}} \right) \left(\frac{\text{MMBtu}}{10,320 \text{ ft}^3} \right) \left(\frac{\text{ppmw}}{1.667 \text{ E}^{-7} \text{ lb / scf}} \right) \left(0.45 \frac{\text{ppmv}}{\text{ppmw}} \right) = 398 \text{ ppmv}$$

398 ppmv SO_2 << 2000 ppmv SO_2 , so EU0080 is always in compliance when burning fuel with a sulfur content of 1.5% by weight or less.

STATEMENT OF BASIS

Permit Reference Documents

These documents were relied upon in the preparation of the operating permit. Because they are not incorporated by reference, they are not an official part of the operating permit.

- 1) Part 70 Renewal Operating Permit Application, received 09/08/03;
- 2) 2004 Emissions Inventory Questionnaire, received 03/24/05;
- 3) U.S. EPA document AP-42, *Compilation of Air Pollutant Emission Factors*; Volume I, Stationary Point and Area Sources, Fifth Edition.

History and Notes on Emission Units Without Limitations

- 1) Coal unloading (EP-01) and coal storage pile (EP-02) are fugitive sources, which do not emit regulated pollutants from a discrete stack or vent. They emit particulate matter directly into the ambient air, and do not have any type of capture/control devices. They are not subject to any specific rule except the installation wide requirement of 10 CSR 10-6.170, *Restriction of Particulate Matter to the Ambient Air Beyond the Premises of Origin*. (See items 4 and 5 in Other Regulatory Determinations below.)
- 2) Portable space heaters (EP-17) are not subject to any specific rule.
- 3) Storage tanks for volatile organic liquids are not subject to any specific rule. (See items 2 and 3 in NSPS Applicability below, and item 2 in Other Regulatory Determinations below.)

Applicable Requirements Included in the Operating Permit but Not in the Application or Previous Operating Permits

In the operating permit application, the installation indicated they were not subject to the following regulation(s). However, in the review of the application, the agency has determined that the installation is subject to the following regulation(s) for the reasons stated.

None.

Other Air Regulations Determined Not to Apply to the Operating Permit

The Air Pollution Control Program (APCP) has determined that the following requirements are not applicable to this installation at this time for the reasons stated.

- 1) 10 CSR 10-2.230, *Control of Emissions from Industrial Surface Coating*
EU0130, Spray Paint Booth, is not subject to this rule. Per 10 CSR 10-2.230(1)(B), it is exempt because it has an allowable VOC emission limit established under 10 CSR 10-6.060 *Construction Permits Required* (Construction Permit #0897-025 issued 8/4/1997.) This rule does not apply to any other units at this installation.
- 2) 10 CSR 10-2.260, *Control of Petroleum Liquid Storage, Loading and Transfer*
This rule applies to petroleum liquid storage tanks with capacities greater than 40,000 gallons. There are no storage vessels with capacities greater than 40,000 gallons at this facility; therefore this rule is not applicable.

3) 10 CSR 10-6.100, *Alternate Emission Limits*

This rule is not applicable because the installation is in an ozone attainment area.

4) 10 CSR 10-6.360, *Control of NO_x Emissions From Electric Generating Units and Non- Electric Generating Boilers*

EU0050 through EU0070, the boilers, are not subject to this rule because, per §(1)(A), it does not apply to electric generating units in Jackson County. This rule does not apply to any other units at this installation.

5) 10 CSR 10-6.400, *Restriction of Emission of Particulate Matter from Industrial Processes*

The following emission units are not subject to this rule because, per §(1)(B)7, it does not apply to fugitive emissions.

Coal unloading (EP-01)

Coal storage piles (EP-02)

The following emission units are not subject to this rule because, per §(1)(B)12, it does not apply to the grinding, crushing and conveying operations at a power plant. (Note: This rule was mistakenly listed as applicable to EU0030, Coal Crusher House, on the permit application.)

EU0010 Coal Conveyor # 18

EU0020 Coal Handling System (Except for Conveyor #18)

EU0030 Coal Crusher House

EU0040 Fly Ash Handling System

The following emission units are not subject to this rule because, per §(1)(B)6, it does not apply to the burning of fuel for indirect heating.

EU0050 Boiler #1

EU0060 Boiler #2

EU0070 Boiler #3

The following emission units are not subject to this rule because, per §(2)(A), liquids and gases used solely as fuels for purposes of combustion are excluded from the definition of process weight.

EU0080 Emergency Generator

EU0090 and EU0100 Welding Machines

EU0110 Back-Up Fire Pump Engine

The following emission unit is not subject to this rule because, per §(1)(B)11, its potential to emit is less than 0.5 lb/hr. (It is a small, facility maintenance only paint booth. The construction permit for it, 0897-025, calculated its annual potential to emit as 100 pounds.) .

EU0130 Spray Paint Booth

Construction Permit Revisions

The following revisions were made to construction permits for this installation:

- 1) Construction Permit 0393-004
 - a) This permit listed 10 CSR 10-2.060, *Restriction of Emission of Visible Air Contaminants*, as an applicable rule. This rule was rescinded on May 30, 2000, and replaced by 10 CSR 10-6.220.
 - b) This permit did not include 40 CFR Part 60 Subpart Y, *Standards of Performance for Coal Preparation Plants*, as an applicable rule. However, this rule is applicable to EU0010 Coal Conveyor #18 because this unit was constructed after October 24, 1974 and is used to transport coal to the EU0030 Coal Crusher House.

NSPS Applicability

- 1) 40 CFR Part 60 Subpart D, *Standards of Performance for Fossil-Fuel-Fired Steam Generators for Which Construction is Commenced After August 17, 1971*
40 CFR Part 60 Subpart Da, *Standards of Performance for Electric Utility Steam Generating Units for Which Construction is Commenced After September 18, 1978*
40 CFR Part 60 Subpart Db, *Standards of Performance for Industrial, Commercial, Institutional Steam Generating Units for Which Construction is Commenced After June 19, 1984*
These subparts do not apply to this installation because the boilers were constructed prior to the subparts' applicability dates.
- 2) 40 CFR Part 60 Subpart K, *Standards of Performance for Storage Vessels for Petroleum Liquids for Which Construction, Reconstruction, or Modification Commenced After June 11, 1973, and Prior to May 19, 1978*
40 CFR Part 60 Subpart Ka, *Standards of Performance for Storage Vessels for Petroleum Liquids for Which Construction, Reconstruction, or Modification Commenced After May 18, 1978, and Prior to July 23, 1984*
These subparts apply to storage vessels with capacities greater than 40,000 gallons that are used to store petroleum liquids. There are no storage vessels with capacities greater than 40,000 gallons at this facility; therefore these subparts are not applicable.
- 3) 40 CFR Part 60 Subpart Kb, *Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced After July 23, 1984*
This subpart applies to storage vessels with capacities greater than or equal to 75 m³ (about 19,800 gallons) that are used to store volatile organic liquids and were constructed after July 23, 1984. There are no storage vessels with capacities greater than or equal to 19,800 gallons that were constructed after July 23, 1984 at this facility; therefore this subpart is not applicable.
- 4) 40 CFR Part 60 Subpart Y, *Standards of Performance for Coal Preparation Plants*
This subpart applies to thermal dryers, pneumatic coal-cleaning equipment (air tables), coal processing and conveying equipment (including breakers and crushers), coal storage systems, and coal transfer and loading systems constructed after October 24, 1974.

- a) EU0010 Coal Conveyor #18 is subject to the requirements of Subpart Y because this unit was constructed after October 24, 1974 and is used to transport coal to the EU0030 Coal Crusher House.
- b) EU0020 Coal Handling System (Except for Conveyor #18) and EU0030 Coal Crusher House were constructed prior to October 24, 1974, and therefore are not subject to the requirements of Subpart Y.
- c) Conveyor #16 and Conveyor #17 were constructed after October 24, 1974. However, these units only convey coal to a coal storage pile. They do not meet the definition of coal conveying equipment (i.e. equipment used to convey coal to or remove coal and refuse from coal processing machinery). Therefore, these units are not subject to the requirements of Subpart Y.

No other New Source Performance Standards apply to this installation.

MACT Applicability

- 1) 40 CFR Part 63, Subpart T, *National Emission Standards for Halogenated Solvent Cleaning*
This subpart does not apply to the Parts Washer and the Spray Paint Booth (EU0120 and EU0130) because the facility does not use any cleaning solvents in the list of applicable solvents for subpart T.
- 2) 40 CFR Part 63 Subpart DDDDD, *National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial and Institutional Boilers and Process Heaters*
This subpart does not apply to the boilers (EU0050 through EU0070) because they are fossil fuel-fired combustion units of more than 25 megawatts that serve as generators that produce electricity for sale.
- 3) 40 CFR Part 63 Subpart ZZZZ, *National Emission Standards for Hazardous Air Pollutants for Reciprocating Internal Combustion Engines*
This subpart does not apply to EU0080, Emergency Generator because this internal combustion engine's MHDR is less than 500 brake horsepower.
- 4) 40 CFR Part 63 Subpart UUUUU, *National Emission Standards for Coal- and Oil- Fired Electric Utility Steam Generating Units*
Coal- and oil- fired electric utility steam generating units were removed from the section 112(c) list of regulated source categories on March 29, 2005.

No other Maximum Achievable Control Technology standards apply to this installation.

NESHAP Applicability

In the permit application and according to APCP records, there was no indication that any Missouri Air Conservation Law, Asbestos Abatement, 643.225 through 643.250; 10 CSR 10-6.080, Emission Standards for Hazardous Air Pollutants, Subpart M, National Standards for Asbestos; and 10 CSR 10-6.250, Asbestos Abatement Projects - Certification, Accreditation, and Business Exemption Requirements apply to this installation. The installation is subject to these regulations if they undertake any projects that deal with or involve any asbestos containing materials. None of the installation's operating projects underway at the time of this review deal with or involve asbestos containing material. Therefore, the above regulations were not cited in the operating permit. If the installation should undertake any construction or demolition projects in the future that deal with or involve any asbestos

containing materials, the installation must follow all of the applicable requirements of the above rules related to that specific project.

No other National Emission Standards for Hazardous Air Pollutants (NESHAPs) apply to this installation.

CAM Applicability

40 CFR Part 64, *Compliance Assurance Monitoring (CAM)*

The boilers (EU0050 through EU0070) meet the applicability criteria for this part because these units each have the uncontrolled potential to emit particulate matter above the major source threshold levels (as defined by Part 70) and utilize control devices (as defined by 40 CFR §64.1) to comply with 10 CSR 10-2.040.

The permittee submitted original and modified CAM Plans, CAM Test Plans, and CAM Quality Assurance/Quality Control (QA/QC) Plans at various times. The latest versions of each approved by the Missouri Department of Natural Resources, Air Pollution Control Program, Compliance and Enforcement Section, were submitted August 1, 2006, August 16, 2006, and July 28, 2006, respectively. Copies of these are at the end of this Statement of Basis.

This accepted Compliance Assurance Monitoring has been incorporated into Permit Condition (EU0050-through EU0070)-001.

Where conflicts arise between 40 CFR Part 60 and the approved CAM plan, CAM test plan, and CAM QA/QC plan and 40 CFR Part 60, the CAM plan, CAM test plan and CAM QA/QC plan govern. This will assure that where there is doubt, the acceptance criteria in these approved documents will be used, and not those in 40 CFR Part 60 Appendix B Performance Specification 11 (PS-11). These monitors are indicators of compliance, and not compliance monitors. The full PS-11 requirements do not apply to monitors that are only indicators of compliance.

Other Regulatory Determinations

1) 10 CSR 10-2.210, *Control of Emissions from Solvent Metal Cleaning*

EU0120, Parts Washer, and EU0130, Spray Paint Booth, are subject to this rule, per 10 CSR 10-2.210(1).

2) 10 CSR 10-6.220, *Restriction of Emissions of Visible Air Contaminants*

The following emission units are not subject to this rule because, per §(1)(A), it does not apply to internal combustion engines.

EU0080 Emergency Generator

EU0090 and EU0100 Welding Machines

EU0110 Back-Up Fire Pump Engine

This rule is not applied to EU0010 Coal Conveyor #18 because the opacity limitation is superseded by the more stringent limitation in 40 CFR Part 60 Subpart Y. 10 CSR 10-6.220 allows an exception of 60% opacity for no more than 6 minutes in any 60 minutes. Subpart Y provides no exception to the opacity limitation.

3) 10 CSR 10-6.260, *Restriction of Emissions of Sulfur Compounds*

This regulation does not apply to the following emission units, because the only significant emission from coal unloading, storage, crushing, or screening is particulate matter. (See 11.9 Western Surface Coal Mining and 11.10 Coal Cleaning in AP-42.)

EU0010 Conveyor #18

EU0020 Coal Handling System (Except for Conveyor #18)

EU0030 Coal Crusher House

Coal storage piles

Coal crusher (inoperable)

This regulation does not apply to the following emission unit, because the only significant emission from fly ash handling is particulate matter. (See 1.1 and 1.2 Coal Combustion in AP-42.)

EU0040 Fly Ash Handling

Other Regulations Not Cited in the Operating Permit or the Above Statement of Basis

Any regulation which is not specifically listed in either the Operating Permit or in the above Statement of Basis does not appear, based on this review, to be an applicable requirement for this installation for one or more of the following reasons:

- 1) The specific pollutant regulated by that rule is not emitted by the installation;
- 2) The installation is not in the source category regulated by that rule;
- 3) The installation is not in the county or specific area that is regulated under the authority of that rule;
- 4) The installation does not contain the type of emission unit which is regulated by that rule;
- 5) The rule is only for administrative purposes.

Should a later determination conclude that the installation is subject to one or more of the regulations cited in this Statement of Basis or other regulations which were not cited, the installation shall determine and demonstrate, to the APCP's satisfaction, the installation's compliance with that regulation(s). If the installation is not in compliance with a regulation which was not previously cited, the installation shall submit to the APCP a schedule for achieving compliance for that regulation(s).

Copy of Compliance Assurance Monitoring (CAM) Documents

The following forty-two pages contain four CAM-related attachments:

- 1) The approved eight-page CAM Plan for the Aquila - Sibley Generating Station submitted, August 1, 2006 (although still dated December 23, 2004 internally); [SB-7 through SB-14]
- 2) Sixteen pages (all but the Appendix B) of the approved CAM Test Plan for the Aquila – Sibley Generating Station, submitted August 16, 2006; and [SB-15 through SB-30]
- 3) Eighteen pages (all but the appendices) of the CAM Quality Assurance and Quality Control Plan for the Particulate Matter Continuous Emissions Monitoring Systems for the Aquila – Sibley Generating Station, submitted July 28, 2006. [SB-31 through SB-48]

COMPLIANCE ASSURANCE MONITORING PLAN

Aquila – Sibley Generating Station

A. Background

1. Emissions Unit:

Description: Boiler #1 – Babcock & Wilcox Cyclone, 609.6 MMBtu/hr
Boiler #2 – Babcock & Wilcox Cyclone, 627.3 MMBtu/hr
Boiler #3 – Babcock & Wilcox Cyclone, 4094.1 MMBtu/hr
(All 3 Units exhaust through Common Stack)

Facility: Sibley Generating Station
33200 E. Johnson Road
Sibley, MO 64088

2. Applicable Requirement:

Regulation: 10 CSR 10-2.040, *Maximum Allowable Emission of
Particulate Matter From Fuel Burning Equipment Used
For Indirect Heating*

Pollutants: Particulate Matter ("PM")

Emission Limits: 0.12 lb PM per MMBtu for each Boiler

Monitoring Requirements: Per 10 CSR 10-2.040: None.
Per Operating Permit: Current gap-filling compliance
demonstration method is a calculation based on coal
throughput and emission factor.
Per Proposed CAM: A Teledyne Analytical
Instruments (TAI) Laserhawk 360 particulate monitor
installed in the common stack to serve as an indicator of
precipitator performance.

3. Control Technology: Electrostatic precipitator (ESP)

B. Monitoring Approach

The key elements of the monitoring approach are presented in Table 1. The CAM performance indicator is a continuous Particulate Monitor, Model Laserhawk 360 ("CEMS"), manufactured by Teledyne Analytical Instruments. The Monitor output will be used to provide a reasonable level of compliance assurance by indicating ESP performance. The CEMS readings shall not be used to directly demonstrate compliance with 10 CSR 10-2.040 limits.

COMPLIANCE ASSURANCE MONITORING PLAN
Aquila – Sibley Generating Station

TABLE I. MONITORING APPROACH

I.	Indicator	Particulate Level of common stack exhaust, as measured by the output of a Continuous PM Monitor, TAI Model Laserhawk 360. The monitor output will be recorded in units of pounds PM per cubic foot or pounds PM per megawatt. Correlation between the monitor output and a Reference Method will be established during a performance test.
	Measurement Approach	PM CEMS in common stack exhaust. When the hourly average PM CEMS reading reaches or exceeds a value equivalent to 1.25 times the highest PM CEMS response value reached during the correlation tests, or 0.9 times the source emissions limit (an "Excursion"), then corrective action must be taken to bring the Unit back within these Limits (see Section 4 below).
II.	Indicator Range	The Particulate Monitor indicator range is an hourly average reading covering the full range of measurements made during the initial calibration plus 25% (minimum). The indicator range is a calibrated instrument output that offers reasonable assurance of compliance with the PM emissions limit. An Excursion (defined above and in Section 4) triggers corrective action.
III.	Performance Criteria	
	A. Representativeness	The PM CEMS is installed at a location in the common stack, chosen to minimize problems due to flow disturbances or varying PM stratification. Prior to installation, measurements shall be made of flow dynamics and/or particulate matter to determine the existence or extent of PM stratification.
	B. Verification of Operational Status	Initial correlation tests will be conducted as specified in this document, with a minimum of 12 valid test runs at 2 different PM concentration levels. The results of these tests will be used to determine the correlation equation and correlation coefficient. See Section C.3.b. below for definition of "valid" test run.
	C. QA/QC Practices and Criteria	Daily Zero and Span checks will be made, and the results documented. The instrument will be recalibrated if the Zero or Span value exceeds $\pm 5\%$ of the reference value. In addition, quarterly Reference Calibrations, routine and recommended periodic maintenance procedures will be performed in accordance with the Manufacturer's instructions.
	D. Monitoring Frequency	The PM concentration of the common stack is monitored continuously.
	E. Data Collection Procedures	The DAS retains all hourly average PM concentration data, plus all daily Zero-Span calibrations. Alarms will signal an instrument malfunction or Excursion.
	F. Averaging period	One minute average PM concentration data are used to calculate hourly block averages.

C. Monitoring Approach Justification

1. Background

The pollutant-specific emission units (PSEU) are three cyclone-fired boilers that route exhaust to a common stack and have a combined heat input rating above 5,000 MMBtu/hr. Each boiler has a dedicated ESP, which controls particulate emissions. All three boilers were constructed before February 15, 1979, and are therefore considered "Existing" per 10 CSR 10-2.040.

COMPLIANCE ASSURANCE MONITORING PLAN
Aquila – Sibley Generating Station

2. Rationale for Selection of Performance Indicators

The CAM indicator selected is an "In-Situ" Particulate Matter CEMS based on light scattering principles, Model Laserhawk 360, manufactured by Teledyne Analytical Instruments. The rationale for the choice of this specific approach is as follows:

- a) Continuous PM monitors are widely used to measure and report PM emissions in many parts of the world, and are considered to be the best real-time indicators of actual mass concentrations.
- b) Rather than using a COMS as a precursor to further action (i. e. calculation of PM emissions via TAI model evaluation) the continuous PM monitor output can directly trigger the need for corrective action and/or reporting obligations.
- c) The TAI instrument has been used as both a performance and regulatory monitor in a wide variety of applications, with more than 600 field installations.
- d) The TAI instrument has a good record for reliability and low maintenance.
- e) The TAI instrument has been used in a number of officially sponsored test programs, and has met preliminary PS-11 specifications in two of them.^{1,2}
- f) The TAI instrument is compatible with the existing DAHS system, which can readily be set up to record the appropriate averages, calibrations and signals for instrument malfunction or PM exceedances.

COMPLIANCE ASSURANCE MONITORING PLAN
Aquila – Sibley Generating Station

3. Instrument Calibration

- a) *General and Pre-Test Monitoring Period.* The instrument will be calibrated based on the boiler load, coal, ESP characteristics and any other performance or test data deemed applicable. Reference method measurements will be conducted in accordance with accepted method standards (normally EPA Methods 5 or 17) and compared with the integrated (arithmetic average) PM CEMS output over the reference method test period as described below.

The Laserhawk 360 will be installed at a vertical stack location recommended by Aquila. From a practical perspective, this would be a location with existing platforming, access and power. The Monitor will be initially operated for a period of approximately 30 days under various operating conditions to identify conditions necessary to produce the two target concentration levels for the correlation testing (see below). During the 30-day pre-test monitoring period, the following key operating parameters will be recorded:

- A. Monitor Output
 - B. Plant Load
 - C. Fuel Type
 - D. ESP Voltage and Current Readings
- b) *Correlation/Performance Testing.* A minimum of twelve (12) valid runs (e.g. 2 loads, 2 fuel blends and 3 tests per condition) will be required to obtain the correlation equation and correlation coefficient. A run will be declared "not valid" only when performed during a time when conditions are clearly not representative of normal operations. The correlation will be determined according to equation 11-3 of PS-11, and the correlation coefficient will be calculated according to equation 11-14 of the referenced document³.
- c) Tests should be performed at two (2) different PM concentration levels, with a minimum of three (3) tests at each level, if possible. Level 1 encompasses the range from 0 to 50% of the maximum PM concentration available. Level 2 should range from 75% to 100% of the maximum concentration. The source should be operated over the complete range of expected conditions, so as to assure

COMPLIANCE ASSURANCE MONITORING PLAN
Aquila – Sibley Generating Station

that the data produced is representative. The data gathered during the 30-day pre-test monitoring period (see Section 3.A above) shall be used to produce the desired concentrations for the test runs. The Sibley Generating Station anticipates operating with a fuel mix of 70% - 100% sub-bituminous coal (such as PRB), 0-30% bituminous, and approximately 1% tire-derived fuel (TDF). The attached coal crush sizing chart provides rough values as recommended by Babcock and Wilcox. Heating values range from 8,350 to 12,500 btu/lb.

- d) During correlation testing, the reference method data and PM CEMS measurements will be converted into units of pounds PM per MMBtu to establish limits comparable to the regulatory standard (0.12 lbs/MMBtu). Once established, these limits will be converted into units of pounds PM per actual stack gas volume, or pounds of PM per megawatt. During operation after testing, the CEMS output, and determination of PM levels with respect to limits, will be conducted only in units of pounds per actual stack gas volume or pounds PM per megawatt.
- e) The correlation coefficient (r) resulting from the calibration testing must be $\geq .75$.
- f) Once the correlation equation has been determined, it will be applied to PM CEMS data collected by the Data Recorder.
- g) Based on the results of the reference method measurements, the data will be documented in a manner similar to that shown in Table 2, and plotted as shown in Figure 1. The point at which an alarm occurs, as well as a reporting requirement and corrective action, will be determined when the hourly average of the PM CEMS output reaches the lower of the following limits:
 - i. A value equivalent to 1.25 times the highest PM CEMS response value reached during the correlation tests.
 - ii. A value equivalent to 0.9 times the source emissions limit.

4. Inspection/Corrective Action

In the event of an Excursion (1-hour CEMS reading indicative of 1.25 times the highest PM CEMS response value reached during the correlation tests, or 0.9 times the source emissions limit. Aquila will take steps to identify and correct any

COMPLIANCE ASSURANCE MONITORING PLAN
Aquila – Sibley Generating Station

operational conditions that may be contributing to the Excursion. The operational checks will be made as soon as practicable and may include

- ESP field checks (T/R voltage, current, spark rate)
- Visual Inspection of Control Equipment
- Unusual Fuel Characteristics
- Boiler Upset Condition

5. QA/QC Criteria

Factory supplied filter standards will be used to calibrate the instrument at a reference Zero and upscale Span value. These calibration standards will be maintained in accordance with manufacturer's recommendations. Following this calibration, an internal "Zero-Span" cycle will be initiated, thus establishing initial values for future reference. Daily "Zero-Span" cycles will follow, with the results stored in the data system and compared with the initial values. Should either the "Zero" or Span" value error exceed $\pm 5\%$ of the starting value, an alarm will be initiated to signal the need for recalibration of the instrument to the factory standards. In addition, a quarterly reference calibration will be performed as described in the instrument operations manual. The factory standards will be used to measure instrument response at a Zero and Upscale value. Should either of these readings exceed the factory standard by more than $\pm 5\%$ of the full scale measurement range, the instrument will be reset to the factory standard values. Finally, routine and scheduled maintenance procedures will be established in accordance with manufacturer's recommendations.

6. Data Acquisition Needs

The data system will be set up to perform the following tasks:

- a) Record the Analog output of the PM CEMS.
- b) Calculate emissions values, in the units of the required standard, and according to the correlation(s) established during the PM CEMS calibration.
- c) Store the hourly averages of the calculated emissions values.

COMPLIANCE ASSURANCE MONITORING PLAN
Aquila – Sibley Generating Station

- d) Record the daily "Zero-Span" calibration results.
- e) Initiate an alarm if any daily Zero or Span value exceeds the error limit of $\pm 5\%$.
- f) Initiate an alarm if the hourly averaged PM CEMS emission value reaches or exceeds the limit value, as defined in section 3, above.
- g) Initiate an alarm on the occurrence of a malfunction status indicator from the Laserhawk 360.

References

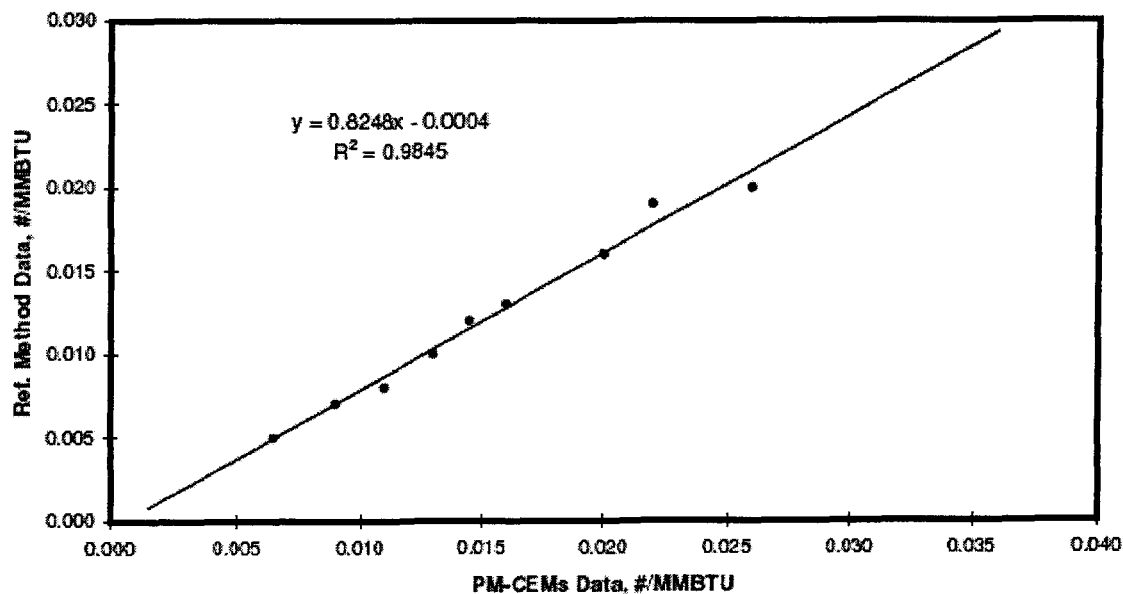
- iii. *Notice of Data Availability and Request for Comments, FRL-5941-4, Federal Register, Vol. 2, No.249 (December 30, 1997).*
- 2. *Results of Continuous PM Monitor Testing at Pleasant Prairie Power Plant, Ralph L. Roberson, Jon Konings and Charles E. Dene, EPRI CEM Users Group Meeting, May 16-18, 2001, Charlotte, NC.*
- 3. *40 CFR 60, Appendix B, Performance Specification 11 – Specification and Test Procedure for Particulate Matter Continuous Monitoring Systems at Stationary Sources.*

COMPLIANCE ASSURANCE MONITORING PLAN
Aquila – Sibley Generating Station

Table 2.

Date	Run #	PM Level	Reference Method Data	PM CEMS Data
	1	1	0.0050	0.0065
	2	1	0.0070	0.0090
	3	1	0.0080	0.0110
	4	2	0.0100	0.0130
	5	2	0.0120	0.0145
	6	2	0.0130	0.0160
	7	3	0.0160	0.0200
	8	3	0.0190	0.0220
	9	3	0.0200	0.0260
Correlation Equation:				$y = .8248x - 0.0004$
Highest PM CEMS Reading:				0.0260
Limit 1 (Highest PM CEMS X 1.25):				0.0325
Limit 2 (0.9 X Emissions Limit):				Calculated

Figure 1. Calibration Graph Example



Compliance Assurance Monitoring Test Plan for Determining Particulate Matter

**Aquila–Sibley Generating Station
33200 E. Johnson Road
Sibley, MO 64088**

August 16, 2006

Prepared by
Aquila, Inc.
and
Burns & McDonnell Engineering Company

Compliance Assurance Monitoring Test Plan – August 2006

TABLE OF CONTENTS

<u>1.0</u>	<u>INTRODUCTION.....</u>	<u>4</u>
<u>2.0</u>	<u>BACKGROUND.....</u>	<u>4</u>
<u>3.0</u>	<u>TEST PLAN METHODOLOGY AND IMPLEMENTATION SCHEDULE</u>	<u>5</u>
<u>3.1</u>	<u>MONITOR SITING AND PRELIMINARY STRATIFICATION TESTING.....</u>	<u>5</u>
<u>3.2</u>	<u>30-DAY PRE-TEST MONITORING PERIOD.....</u>	<u>6</u>
<u>3.3</u>	<u>SEVEN (7)-DAY DRIFT TEST.....</u>	<u>7</u>
<u>3.4</u>	<u>CORRELATION TESTING.....</u>	<u>8</u>
APPENDIX A: METHOD 17		
<u>APPENDIX B</u>	<u>TEOM SERIES 7000 SOURCE PARTICULATE MONITOR</u>	

Compliance Assurance Monitoring Test Plan – August 2006

FIGURES

Figure 3.1: IMPLEMENTATION SCHEDULE	5
---	---

Note: This figure is not on page 5 as was indicated above. It is irrelevant at this point, since the test plan is already complete.

Compliance Assurance Monitoring Test Plan – August 2006

1.0 INTRODUCTION

The Aquila-Sibley Generating Station located in Sibley, MO has an approved Compliance Assurance Monitoring (CAM) plan for particulate emissions. The scope of work set forth in this CAM Test Plan is designed to gain acceptance of Teledyne's continuous particulate monitor (Laserhawk 360) for Aquila's CAM obligations to Missouri Department of Natural Resources and Region VII EPA. The CAM performance indicator is a continuous Particulate Monitor, (Laserhawk 360) ("PM CEMS"), manufactured by Teledyne Analytical Instruments. The CEMS output will be used to provide a reasonable level of compliance assurance by indicating ESP performance. The PM CEMS readings shall not be used to directly demonstrate compliance with 10 CSR 10-2.040 limits.

2.0 BACKGROUND

The pollutant-specific emission units (PSEU) are three cyclone-fired boilers that route exhaust to a common stack and have a combined heat input rating above 5,000 MMBtu/hr. Each boiler has a dedicated ESP, which controls particulate emissions. All three boilers were constructed before February 15, 1979, and are therefore considered "Existing" per 10 CSR 10-2.040.

1. Emissions Unit:

Description: Boiler #1 – B&W Cyclone, 609.6 MMBtu/hr
 Boiler #2 – B&W Cyclone, 627.3 MMBtu/hr
 Boiler #3 – B&W Cyclone, 4094.1 MMBtu/hr
 (All 3 Units exhaust through Common Stack)

Facility: Aquila-Sibley Generating Station
 33200 E. Johnson Road
 Sibley, MO 64088

2. Applicable Requirement:

Regulation: 10 CSR 10-2.040, *Maximum Allowable Emission of Particulate Matter From Fuel Burning Equipment Used For Indirect Heating*

Pollutants: Particulate Matter ("PM")

Emission Limits: 0.12 lb PM per MMBtu for each Boiler

Compliance Assurance Monitoring Test Plan – August 2006

Monitoring Requirements: Per 10 CSR 10-2.040: None.

Per Operating Permit: Current gap-filling compliance demonstration method is a calculation based on coal throughput and emission factor.

Per Proposed CAM: A Teledyne Analytical Instruments Laserhawk 360 particulate monitor installed in the common stack to serve as an indicator of precipitator performance.

3. Control Technology: Electrostatic precipitator (ESP)

3.0 TEST PLAN METHODOLOGY AND IMPLEMENTATION SCHEDULE

The CAM Test Plan is comprised of the following five components:

- 3.1 Monitor Siting and Preliminary Stratification Testing (already performed by TEOM)
- 3.2 30-Day Pre-Test Monitoring Period, Monitor Range Determination
- 3.3 7-Day Drift Test
- 3.4 Correlation Testing

The overall CAM Test Plan implementation schedule is depicted in Figure 3-1. The schedule for tasks and subtasks are detailed for each of the five major components. The specific test methods and procedures that will be employed to successfully execute each component of the CAM Test Plan are described in detail in the following sections.

3.1 MONITOR SITING AND PRELIMINARY STRATIFICATION TESTING

This portion of the CAM Test Plan was completed July 20, 2005, by Thermo using two TEOM sampling units simultaneously as described in this section. Acceptable stratification test results were submitted to MDNR with subsequent installation of an ESC P-5B particulate monitor at the sampling platform. After a few months of operation the P-5B was determined to be inadequate for Sibley operational conditions. Teledyne's Laserhawk 360 was then purchased to replace the ESC P5b as a CAM indicator.

The PM CEMS (P-5B) was installed at an accessible location downstream of all pollution control equipment. The PM CEMS concentration measurements were conducted from a location considered representative or be able to provide data that can be corrected to be representative of the total PM emissions as determined by the TEOM reference method. A measurement location was selected that minimized problems due to flow disturbances, cyclonic flow, and varying PM stratification (refer to EPA Reference Method 1 for guidance). The PM CEMS was installed at a vertical stack location recommended by

Compliance Assurance Monitoring Test Plan – August 2006

Aquila. From a practical perspective, this was a location with existing platforms, access and power.

Since higher emissions will be created for correlation test purposes by adjusting the performance of the air pollution control device, the PM CEMS measurement location was located as far downstream from the control device as possible in accordance with EPA Reference Method 1 in order to minimize PM stratification that may be created in these cases.

For the selection of an installation location, flow disturbances were minimized and if possible avoided in accordance with the upstream/downstream minimum distances set forth in EPA Reference Method 1. The TEOM reference method measurements were conducted at locations that satisfy the measurement site selection criteria specified in EPA Method 1 of at least eight duct diameters downstream and at least two duct diameters upstream of any flow disturbance. If necessary, testing may be conducted at a location that is two diameters downstream and 0.5 diameters upstream of any flow disturbances. Cyclonic flow will also be minimized and if possible avoided in accordance with the test procedures set forth in EPA Reference Method 2.

A potential installation location was identified utilizing EPA Reference Methods 1 and 2. This potential installation location was then checked for cyclonic flow and for varying PM stratification in accordance with the test procedures set forth in ASTM Method D6831, Determination of Particulate Mass Concentration Using an Automated In-stack Test Method. In accordance with ASTM Method D6381, a TEOM Series 7000 Source Particulate Monitor was used to provide gravimetric particulate measurements in near "real-time". Three, 1-hour ASTM Method D6381 test runs were conducted at the potential installation location for each of 2 different conditions. A total of six (6) test runs were conducted for the 2 different conditions. A traverse of the stack at the installation location was conducted using the TEOM Series 7000 in accordance with EPA Reference Methods 1 & 2. During the traverse real-time particulate matter stratification data was collected at each of the traverse points. After the TEOM testing was completed, the particulate matter stratification data was evaluated for each of the 2 different conditions in order to choose an acceptable measurement point location. Real time particulate data is subject to short-term variability due primarily to ESP rapping. Such temporal variations may be incorrectly identified as evidence of stratification. During evaluation of the TEOM stratification data, an effort was made to account for rapping spikes by, for example, averaging traverse point data over multiple rapping sequences, or by deleting obvious rapping spikes.

3.2 30-DAY PRE-TEST MONITORING PERIOD

After completing the initial field installation of the Teledyne Laserhawk 360, the PM CEMS will be operated in accordance with manufacturer's instructions. In this way, Aquila personnel will be able to familiarize themselves with its operation prior to beginning correlation testing. During this initial 30-Day Pre-test Monitoring Period, daily checks (zero and upscale drift, as appropriate) will be performed, and, when any

Compliance Assurance Monitoring Test Plan – August 2006

check exceeds the daily specification (per QA/QC plan), adjustments will be made and any necessary maintenance performed to ensure reliable operation.

The PM CEMS will be adjusted to respond consistently to PM present in the stack under different conditions of boiler load, coal, ESP characteristics and any other performance or test data deemed applicable. The purpose of the 30-Day Pre-test Monitoring Period is to identify the full range of operating conditions and PM emissions to be used in the PM CEMS correlation test.

The relationships between operating conditions and PM CEMS response will be identified, especially those conditions that produce the highest PM CEMS response over 15-minute averaging periods, and the lowest PM CEMS response as well. The objective will be to be able to reproduce these conditions for purposes of the actual correlation testing. The response range of the PM CEMS will be set such that the instrument measures the full range of responses that correspond to the range of source operating conditions that will be implemented during correlation testing. The preliminary reference method testing will be conducted after the 30-day pre-test monitoring period. During this preliminary testing, the PM emission concentration will be measured corresponding to the highest PM CEMS response observed during the full range of normal operation and when perturbing the control equipment. During ESP perturbation, select ESP fields will be turned off for approximate 15-minute periods to observe PM response. MDNR Air Pollution Control Program Enforcement Section will be notified at least 24 hours in advance of any ESP perturbation.

The PM CEMS will be initially operated for a period of approximately 30 days under various operating conditions to identify conditions necessary to produce the two target concentration levels for the correlation testing (see below). During the 30-day pre-test monitoring period, the following key operating parameters will be recorded:

- A. Monitor Output
- B. Plant Load
- C. Fuel Type
- D. ESP Secondary Voltage, Current, and Spark Rate for each field

3.3 SEVEN (7)-DAY DRIFT TEST

After (or during, if allowed by MDNR) the 30-Day Pre-test Monitoring Period and before performing correlation testing, a 7-day zero and upscale drift test will be performed. The purpose of the 7-day drift test is to demonstrate that the system is capable of operating in a stable manner and maintaining its calibration for at least a 7-day period. The magnitude of the drift will be determined once each day, at 24-hour intervals, for 7 consecutive days while the plant is operating normally. Once the response range has been set and the drift test successfully completed, the response range of the monitor cannot be changed.

Compliance Assurance Monitoring Test Plan – August 2006

The zero (or low-level value between 0 and 20 percent of the response range of the instrument) and upscale (between 50 and 100 percent of the instrument's response range) drift will be checked daily over 7 consecutive days. The PM CEMS will quantify and record the zero and upscale measurements and the time of the measurements. The drift test will be conducted immediately before any automatic or manual adjustments to the PM CEMS zero and upscale settings. Drift will be calculated in accordance with the calculation procedures in section 12.1 of PS 11 and the acceptance criteria for allowable drift will be 4% of the upscale span check value for both zero and span.

3.4 CORRELATION TESTING

The standard APCP Proposed Test Plan will be prepared and submitted a minimum of thirty days prior to the test date. This test date will be mutually agreed to by all parties involved.

A minimum of twelve (12) valid runs (e.g. 2 loads, 2 fuel blends and 3 tests per condition) will be required to obtain the correlation equation and correlation coefficient. A run will be declared "not valid" only when performed during a time when conditions are clearly not representative of normal operations. The correlation will be determined according to equation 11-3 of PS 11, and the correlation coefficient will be calculated according to equation 11-14 of PS 11.

Tests will be performed at two (2) or more different PM concentration levels, with a minimum of three (3) tests at each level, if possible. Level 1 encompasses the range from 0 to 50% of the maximum PM concentration available. Level 2 should range from 75% to 100% of the maximum concentration. The source will be operated over the complete range of expected conditions, so as to assure that the data produced is representative. The data gathered during the 30-day pre-test monitoring period will be used to produce the desired concentrations for the test runs. The Aquila-Sibley Generating Station anticipates operating with a fuel mix of 70% - 100% sub-bituminous coal (such as PRB), 0-30% bituminous, and approximately 1% tire-derived fuel (TDF). Heating values range from 8,350 to 12,500 Btu/lb. Actual fuel blend information will be included in the Correlation Test Report.

During correlation testing, the reference method data measurements will be converted into units of pounds PM per MMBtu to establish limits comparable to the regulatory standard (0.12 lbs/MMBtu). The reference method data will be correlated the PM CEMS output using the PS-11 Spreadsheet. The reference method data will be correlated to the mg per actual cubic meter output from the PM CEMS. During operation after testing, the CEMS output, and determination of PM levels with respect to limits, will be conducted only in units of milligrams per actual cubic meter.

The correlation coefficient (r) resulting from the calibration testing must be $\geq .75$. Once the correlation equation has been determined, it will be applied to PM CEMS data collected by the Data Recorder. The point at which an alarm occurs, as well as a reporting requirement and corrective action, will be determined when the hourly average of the PM CEMS output reaches the lower of the following limits:

Compliance Assurance Monitoring Test Plan – August 2006

- i. A value equivalent to 1.25 times the highest PM CEMS response value reached during the correlation tests.
- ii. A value correlated to 0.9 times the source emissions limit in lb/MMBTU.

The specific stack gas constituents that will be determined as part of the correlation testing include the following:

- A. Total suspended particulate (TSP)
- B. Flue gas composition (O₂, CO₂, H₂O)
- C. Flue gas temperature
- D. Flue gas flow rate

The testing methodology to be used for TSP emissions determination is EPA Reference Method 1-4 and 17 for coal-fired boilers.

Each run will include the following measurements:

- average particulate concentration and mass emission rates as measured by USEPA Reference Method 17
- oxygen and carbon dioxide concentrations measured by USEPA Method 3A procedures;
- flue gas moisture measured by USEPA Method 4 procedures;
- flue gas temperature, velocity and volumetric flow rate using USEPA Method 2 procedures.

For each test run coordination will be done for process operations, reference method sampling, and PM CEMS operations. For example, a check will be made to make sure the process is operating at the targeted conditions, reference method sampling is being performed, and the PM CEMS and data logger are operating properly.

The start and stop times of each run will be coordinated between the reference method sampling and the PM CEMS operation. The times for port changes (and other periods when the reference method sampling may be suspended) will be noted on the data sheets so that the PM CEMS data can be adjusted accordingly, if necessary. The time periods for the PM CEMS will be aligned with the reference method measurements to account for the PM CEMS response time.

A minimum of 12 valid runs must be conducted each consisting of simultaneous PM CEMS and reference method measurement sets.

Compliance Assurance Monitoring Test Plan – August 2006

- (i) More than 12 sets of CEMS and reference method measurements may be conducted. In this case, certain test results may be rejected so long as the total number of valid test results used to determine the correlation is greater than or equal to 12.
- (ii) All data must be reported, including the rejected data.
- (iii) The results of up to five test runs may be rejected if shown to be non-representative data ("not valid").
- (iv) The basis for rejecting the results of the additional test runs must be explicitly stated in the reference method, PS 11, Procedure 2 of appendix F, or the quality assurance plan.

Simultaneous PM CEMS and reference method measurements will be performed in a manner to ensure that the range of data that will be used to establish the correlation for the PM CEMS is maximized.

An attempt to maximize the correlation range will be performed by following the procedures described in paragraphs (4)(i) through (iv) of PS 11. If the two levels of PM mass concentration can not be obtained as described in paragraphs (i) through (iv), then the procedure described in section 8.6(5) of PS 11 will be used.

- (i) Two different levels of PM mass concentration will be obtained by varying process operating conditions, varying PM control device conditions, or by means of PM spiking.
- (ii) The two PM concentration levels used in the correlation tests must be distributed over the complete operating range experienced by your source.
- (iii) At least 20 percent of the minimum 12 measured data points used should be contained in each of the following levels:
 - Level 1: From no PM (zero concentration) emissions to 50 percent of the maximum PM concentration;
 - Level 2: 75 to 100 percent of the maximum PM concentration.

If two distinct levels of PM concentration as described can not be obtained, correlation testing must be performed over the maximum range of PM concentrations that is practical for the PM CEMS. To ensure that the range of data used to establish the correlation for the PM CEMS is maximized, one or more of the steps in paragraphs (5)(i) through (iv) of PS 11 must be followed.

- (i) Zero point data for in-situ instruments should be obtained, to the extent possible, by removing the instrument from the stack and monitoring ambient air on a test bench.

Compliance Assurance Monitoring Test Plan – August 2006

- (ii) Zero point data for extractive instruments should be obtained by removing the extractive probe from the stack and drawing in clean ambient air.
- (iii) Zero point data also can be obtained by performing TEOM reference method measurements when the flue gas is free of PM emissions or contains very low PM concentrations (e.g., when your process is not operating, but the fans are operating or your source is combusting only natural gas).
- (iv) If none of the steps in paragraphs (5)(i) through (iii) of this section are possible, you must estimate the monitor response when no PM is in the flue gas (e.g., 4 mA = 0 mg/acm).

Compliance Assurance Monitoring Test Plan – August 2006

Appendix A

USEPA REFERENCE METHOD 17 - PARTICULATE

Testing Equipment High-Volume Source Sampling Train. An Acurex Corp., aerotherm high-volume stack sampler (Model HVSS-045) will be used at the sampling location(s). The HVSS particulate sampling train consisted basically of an appropriate length aluminum probe with a calibrated Type K (chromel/alumel) thermocouple; a stainless steel, in-stack filter holder; a standard lexan/stainless steel impinger assembly with a calibrated Type K (chromel/alumel) thermocouple located at the impinger outlet; a 3/4-hp, shaft-sealed, carbon vane vacuum pump assembly with a vacuum gauge; a control unit with an elapsed time indicator, a temperature selector switch, a temperature indicator (potentiometer), temperature controllers, calibrated magnehelic gauges, a calibrated dry gas meter, and a calibrated variable-diameter orifice; and umbilical and various interconnecting hoses, fittings, and valves. An appropriately sized stainless steel nozzle, a calibrated Type K (chromel/alumel) temperature sensor, a static pressure tube, and a calibrated S-type pitot tube are integral parts of the probe assembly.

The vacuum pump unit will be used to control gas sampling rates. The control unit will be also used to monitor elapsed sampling times, temperatures, velocities, static pressure, gas sampling rates, and sampled gas volumes.

Integrated Gas Sampling Train. Flue gas will be collected at the sampling location(s) for analysis with an integrated gas sampling train. The sample will be collected at the outlet of the particulate control meter.

Sampling Procedures

Prior to field testing, the following procedures will be performed:

Compliance Assurance Monitoring Test Plan – August 2006

All instruments will be checked and calibrated. Teyo-Roshi filters No. 86R 30 x 100 millimeter, glass-fiber thimble filters with a 99.9 percent retention of 0.25 micron particles will be individually numbered, placed separately in similarly numbered aluminum mailing cartons, oven-dried at 220°F for two to three hours, cooled in a desiccator for two hours, and individually weighed on a Sartorius analytical balance to the nearest 0.1 milligram, then weighed every six hours, minimum, until two consecutive weights within ± 0.5 milligram will be obtained. Several 250 milliliter crucibles will be desiccated for a minimum of 24 hours and weighed in the same manner as the filters and mailing cartons. Also, several 350-gram quantities of Type 6-16 mesh indicating silica gel will be weighed out on a Mettler top-loader electric balance and individually placed into separate airtight polypropylene storage bottles.

The number of sampling points and positions of the points in the flue at the sampling location(s), and the sampling time at each point will be determined prior to the particulate testing. The sampling procedures will be performed in accordance with the Environmental Protection Agency's Reference Method 17, "Determination of Particulate Emissions from Stationary Sources," in the Title 40, *Code of Federal Regulations*, Part 60, Appendix A.

An HVSS sampling train will be prepared in part at the sampling location(s), before each test run, in the following manner:

Compliance Assurance Monitoring Test Plan – August 2006

An appropriately sized sampling nozzle will be installed onto the inlet of a filter holder and capped. The probe will be then dimensioned and marked with glass-cloth tape at increments that corresponded with the predetermined sampling point positions in the flue. A standard impinger assembly will be prepared by adding 250 milliliters of three percent concentration hydrogen peroxide, in lieu of distilled water, to each of the first two lexan impingers. This will be done to partially trap sulfur dioxide and sulfuric acid mist carryover, and to prevent a strong concentration of these contaminants from contacting and possibly damaging the vacuum pump or dry gas meter. The third lexan impinger will be left dry and the fourth will be filled with 350 grams of Type 6-16 mesh indicating silica gel. This entire impinger assembly will be then placed into an ice bath. A glass-fiber thimble will be removed from its carton and placed inside a filter holder. The filter holder will be then attached to the sampling probe inlet. Next, umbilical and sampling hoses will be connected to the sampling probe, impinger unit, vacuum pump, and control unit, accordingly. All magnehelic gauges will be checked and zeroed. The entire sampling train assembly will be leak-checked at 15 inches of mercury vacuum, minimum, for one minute and the leakage rate recorded. A leakage rate less than 0.02 cfm and no vacuum loss will be considered acceptable. After the HVSS particulate sampling train had been assembled, and the entire system leak-checked, as previously described, the particulate sampling will be performed. Prior to the particulate sampling, a preliminary temperature and velocity traverse, orsat analysis, and calculations will be performed to determine a correct nozzle and orifice size, and these factors will be used in calculating the isokinetic sampling rate for each sampling point. Knowing the actual pressure differential across the pitot tube used, the isokinetic sampling rate will be calculated at each sampling point using a Texas Instrument Model 74 pocket computer.

Three test runs will be performed at the sampling location(s). A total of 16 points (four points from each of the four sampling ports) will be sampled. Each point will be sampled for a period of three minutes at a

Compliance Assurance Monitoring Test Plan – August 2006

calculated isokinetic sampling rate. The sampling data for each test run will be recorded on a field test form during each of the sampling period.

After the completion of a test run, the following procedures will be performed:

A final leak-check will be performed at 15 inches of mercury vacuum, minimum, for one minute and the leakage rate recorded. The flue gas moisture collected in the first three impingers will be measured and recorded. The moisture laden silica gel in the fourth impinger will be transferred to an appropriately marked, airtight polypropylene storage bottle and retained for later weighing. The weight gain of the silica gel moisture collection will be added to the measured moisture condensed during the test run to determine the total moisture collected for that run. The sampling nozzle and filter holder will be capped and taken to a clean area for sample recovery. At the recovery area, the filter will be carefully removed from the filter holder and transferred to its carton for later desiccation and weighing. The sampling nozzle and filter holder inlet will be washed with nanograde acetone. The acetone washing and an acetone blank will be collected in appropriately labeled polypropylene sample bottles and retained for later evaporation, desiccation, and weighing. Flue gas composition (percent CO₂, and percent O₂) will be determined by taking, throughout each test run, by an integrated gas sampling train several samples of the gas collected, simultaneously, with the particulate sampling. The integrated gas sample will be collected from the discharge of the particulate control unit. The sampling train will be set at a predetermined constant flow rate to obtain an adequate sample. The integrated bags will then be analyzed by the O₂ and CO₂ monitors in the Burns & McDonnell testing trailer. The required quality assurance checks and calibration of the monitors will be recorded as required by Method 3A.

Compliance Assurance Monitoring Test Plan – August 2006

Analytical Procedures

After the field testing will be completed, the following procedures will be performed:

The silica gel, filters, carton, acetone washings, and acetone blank(s) from the test runs will be analyzed by Burns & McDonnell Engineering Company, Inc., Kansas City, Missouri. The analytical procedures will be performed in accordance with the Environmental Protection Agency's Reference Method 17, "Determination of Particulate Emissions from Stationary Sources," in the Thursday, August 18, 1977, *Federal Register*, "Standards of Performance for New Stationary Sources."

Each silica gel moisture collection will be weighed directly out of its polypropylene storage bottle on a Mettler electronic balance with a sensitivity of 0.1 gram. Each filter and carton will be oven dried at 220°F for two to three hours, cooled in a desiccator for two hours before weighing, and weighed every six hours, minimum, until two consecutive weights within ± 0.5 milligram are obtained. Each acetone washing and acetone blank will be transferred from its sample bottle to a preweighed aluminum tin for evaporation on a low-temperature hot plate at 130°F. When the acetone in a crucible has completely evaporated, the crucible will be transferred to a desiccator for further drying at room temperature for a minimum of 24 hours before weighing, and weighed every six hours, minimum, until two consecutive weights within ± 0.5 milligram are obtained. Each acetone blank collected will be used to determine the amount of residual weight each aluminum tin retained due to acetone impurities. Each filter and carton, acetone washing and acetone blank will be individually weighed on a Sartorius analytical balance with a sensitivity of 0.1 milligram.

All test instruments will be recalibrated to determine the deviation percentage.

QUALITY ASSURANCE & QUALITY CONTROL PLAN

PARTICULATE MATTER CONTINUOUS EMISSIONS MONITORING SYSTEMS

Aquila
Sibley Generating Station

Prepared by:

Aquila Environmental Services

Revision Number: _____
Date of Revision: _____

SECTION 1 – THE QUALITY ASSURANCE PLAN..... 1

1.1 Quality ASSURANCE policy, GOAL, and objectives 1

1.2 DISTRIBUTION AND DOCUMENT CONTROL 2

1.2.1 MAINTENANCE OF THE QA/QC PLAN 2

1.3 ORGANIZATION and Responsibility 2

1.3.1 RESPONSIBLE OFFICIAL AND DESIGNEE 2

1.3.2 Sibley Instruments and controls department 2

1.3.3 ENVIRONMENTAL SERVICES DEPARTMENT 3

1.4 FACILITIES, EQUIPMENT, AND SPARE PARTS INVENTORY 3

1.4.1 PARTICULATE MATTER CONTINUOUS EMISSION MONITORING SYSTEM 3

1.4.2 RECOMMENDED SPARE PARTS AND STACK DRAWINGS 3

1.5 METHODS and procedures – analysis and data acquisition 3

1.6 CALIBRATION and quality control checks 4

1.7 MAINTENANCE - PREVENTIVE 4

1.8 SYSTEMS AUDITS 4

1.9 PERFORMANCE AUDITS 5

1.9.1 ABSOLUTE Correlation AUDIT (ACA) 5

1.9.2 RELATIVE RESPONSE AUDIT (RRA) 6

1.9.3 RESPONSE CORRELATION AUDIT (RCA) 6

1.10 CORRECTIVE ACTION PROGRAM 7

1.10.1 SUGGESTED corrective action 7

1.11 REPORTS 7

2.1 START-UP AND OPERATION 8

2.2 PM-CEMS INSPECTION AND PREVENTIVE MAINTENANCE 8

2.3 CALIBRATION Procedures 8

2.3.1 DAILY CALIBRATION CHECK 9

2.3.2 DAILY PM-CEMS DRIFT ASSESSMENT AND CORRECTIVE ACTION 9

2.4 PREVENTIVE maintenance procedures 10

2.5 CORRECTIVE maintenance procedures 10

2.6 Performance AUDIT procedures 10

2.6.1 ABSOLUTE CORRELATION AUDIT (ACA) 10

2.6.2 RELATIVE RESPONSE AUDIT (RRA) 11

2.6.3 RELATIVE CORRELATION AUDIT (RCA) 12

2.7 SYSTEM audit procedures 14

2.8 DATA backup procedures 15

2.9 DATA reporting procedures 15

APPENDICES

PM-CEMS SPECIFICATIONS

PERFORMANCE SPECIFICATION 11

CALCULATIONS

BLANK FORMS

APPENDIX A

APPENDIX B

APPENDIX C

APPENDIX D

SECTION 1 – THE QUALITY ASSURANCE PLAN

This Quality Assurance (QA) Plan is the basis for assessing and maintaining the quality of particulate matter continuous emission monitoring system ("PM-CEMS") data. The QA Plan has been prepared for Aquila, operators of one (1) PM-CEMS at the Sibley Generating Station. The PM-CEMS are installed pursuant to 40 CFR Part 64, Compliance Assurance Monitoring ("CAM"). As such, the PM-CEMS is not to be used for direct compliance demonstration for any applicable regulation. Per Part 64.3(a), the purpose of the PM-CEMS is to "provide a reasonable assurance of compliance with emission limitations or standards for the anticipated range of operations at a pollutant-specific emissions unit." Specifically, the PM-CEMS will provide data to help in the operation and maintenance of the electrostatic precipitators ("ESP") installed at this facility. Similarly, 40 CFR Part 60, Appendix F, Procedure 2 has been partly utilized to develop this QA Plan, but is not directly applicable to Sibley's PM-CEMS per Appendix F, Procedure 2, Section 1.0. Also, Two documents related to Sibley's CAM have been developed and approved by the Missouri Department of Natural Resources ("MDNR"). The two documents are Sibley's CAM Plan and CAM Test Plan. Where conflicts arise between the Sibley CAM Plan/Test Plan and 40 CFR Part 60 regulations, the MDNR-approved Plans will be followed.

Table I below illustrates the PM-CEMS that have been installed at the facility.

Table I. PM-CEMS installed and certified at Aquila's Sibley Generating Station

Mfr/Model	Serial Number	Measurement Range	Location	Correlation Test Date
Teledyne Monitor Labs / LaserHawk 360	TBD	TBD	Common Stack	TBD

1.1 QUALITY ASSURANCE POLICY, GOAL, AND OBJECTIVES

Quality Assurance (QA) and Quality Control (QC) are two independent and interrelated functions. Quality Assurance can be defined as the system of activities to provide assurance that the QC is performing adequately.

A QA Plan has two functions:

(1) QA – the assessment of the quality of the data (accuracy and precision) and, (2) QC – activities that maintain or improve data quality. Both functions form a control loop. When accuracy or precision is unacceptable, QC must increase until the quality of data is acceptable.

Quality control functions are usually a series of frequent internal checks, such as system inspections, periodic calibrations, and routine maintenance. Quality assurance, on the other hand, involves less frequent external checks on data quality. These external checks may include independent system audits, third party sampling and analysis for accuracy and precision, comparison to known calibration standards or inter-laboratory audits. This Quality Assurance Plan encompasses both QA and QC functions, and whenever possible, specific activities are identified by the function that is fulfilled by the activity.

1.2 DISTRIBUTION AND DOCUMENT CONTROL

This QA Plan will be reviewed on an annual basis. Revision tracking system will be provided on the front page of this document and includes revision number and date of revision.

1.2.1 MAINTENANCE OF THE QA/QC PLAN

To properly maintain the QA Plan, the following activities are monitored:

- (1) Maintain a current list of QA/QC plan holders.
- (2) Prepare revisions and updates of the QA/QC Plan as a result of the following:
 - Changes in regulations.
 - Modifications or improvements of QA/QC procedures.
 - Changes in personnel or organization.
 - Replacement of PM-CEMS components.
 - Modifications to operating permit.

1.3 ORGANIZATION AND RESPONSIBILITY

Specific facility personnel are assigned responsibility for the PM-CEMS operational status instrument maintenance and system control. The following are provided as a guideline, which organize responsibilities for the operation and maintenance of a PM-CEMS.

1.3.1 RESPONSIBLE OFFICIAL AND DESIGNEE

The Title V Permit Responsible Official or designee is responsible for reviewing and signing all quarterly reports.

1.3.2 SIBLEY INSTRUMENTS AND CONTROLS DEPARTMENT

Has overall responsibility for the operation and maintenance of the PM-CEMS, and generation of appropriate reports. The department reports all major problem associated with the PM-CEMS to the Plant Manager and Environmental Services.

1.3.3 ENVIRONMENTAL SERVICES DEPARTMENT

Environmental Services is responsible for corresponding with regulatory agencies, including reviewing/submitting all required reports, and maintaining compliance with Sibley's Title V Permit.

1.4 FACILITIES, EQUIPMENT, AND SPARE PARTS INVENTORY

The Sibley Generating Station consists of three (3) steam generating units, with each unit equipped with a dedicated ESP to control particulate emissions. All three units exhaust through a common stack, where the PM-CEMS is located.

The PM-CEMS is wired to a programmable logic controller located in the CEM shelter and will record data in the Continuous Emission Monitoring System DAHS.

1.4.1 PARTICULATE MATTER CONTINUOUS EMISSION MONITORING SYSTEM

The particulate monitoring system utilized is a Teledyne Monitor Labs 360 particulate monitor, located on the Sibley common stack. Measurement of particulate concentration is accomplished by passing a beam of laser light into the duct and measuring the intensity of the backscattered light.

1.4.2 RECOMMENDED SPARE PARTS AND STACK DRAWINGS

A list of spare parts is included in the instrument operations manual. Stack drawings and process diagrams are also kept on site and available for review.

1.5 METHODS AND PROCEDURES – ANALYSIS AND DATA ACQUISITION

The PM-CEMS data acquisition system (DAS) is an automated system that records PM-CEMS data and provides readouts as one-minute averages, which are used in subsequent calculations and report preparation. Reports prepared by the system include alarm, calibration, and emission reports.

The DAS is capable of reading all values over the full range of each measurement device and creates a permanent record of all required measured and calculated data for storage, review, and reporting. A continuous readout in units allowed by the Sibley CAM Plan is recorded.

1.6 CALIBRATION AND QUALITY CONTROL CHECKS

A set of operation and maintenance manuals for all systems components is maintained in the CEMS shelter. These manuals provide complete descriptions of the PM-CEMS including theory, installation, operation, and maintenance.

Factory supplied filter standards are used to calibrate the instrument at a reference zero and upscale span value. These calibration standards will be maintained in accordance with the manufacturer's recommendations. Following this calibration an internal "zero-span" cycle will be initiated, thus establishing initial values for future reference. Daily "zero-span" cycles will follow with the results stored in the data system and compared with the initial values. Should either of the "zero or span" value error exceed plus or minus 4% of the starting value, an alarm will be initiated to signal the need for recalibration of the instrument to the factory standards.

In addition a quarterly reference calibration will be performed as described in the instrument operations manual. The factory standards will be used to measure instrument response at a zero and upscale value. Should either of these readings exceed the factory standard by more than plus or minus 4% of the full-scale measurement range, the instrument will be reset to the factory standard values. Finally, routine scheduled maintenance procedures will be established in accordance with the manufacturer's recommendations.

1.7 MAINTENANCE - PREVENTIVE

The preventive maintenance program for the PM-CEMS is based on the equipment manufacturers recommended procedures.

1.8 SYSTEMS AUDITS

A systems audit involves a general inspection of the monitoring system. It is intended as a walk through audit and used to provide a quick assessment of the availability of data, general effectiveness of operation and maintenance, and the completeness of recordkeeping procedures. Systems audit involves the following areas:

- Administrative
 - Maintenance logs – timely, complete
 - Recordkeeping – completeness, available
 - Verify correct range values entered into the data acquisition system
- Technical
 - Printer – operational, legible printouts consistent with process conditions
 - Data system – cabinets clean, areas maintained

- Monitor enclosure – clean, all systems operational
- Purge air blowers – operational

1.9 PERFORMANCE AUDITS

The following performance audits are required to quality assure PM-CEMS data. These audits are based upon 40 CFR 60, Appendix F, Procedure 2, however Appendix F is not directly applicable to the PM-CEMS.

1.9.1 ABSOLUTE CORRELATION AUDIT (ACA)

An Absolute Correlation Audit is required once each calendar quarter but no sooner than 2 months after the previous ACA. ACAs are not required in quarters in which a Response Correlation Audit (RCA) is performed.

- Challenge the PM-CEMS three times at each audit point and use the average of the three responses in determining accuracy at each audit point. Audit points are audit filters that produce particulate levels of known values.

Audit Point	Audit Range
1	0 - 20 percent of measurement range
2	40 - 60 percent of measurement range
3	70 - 100 percent of measurement range

- Challenge the PM-CEMS at each audit point for a sufficient period of time to ensure that the PM-CEMS response has stabilized.
- Alternate filter insertions so that no filter is measured twice in succession during the audit.
- The difference between the actual known value of the audit standard and the response of the monitor is used to assess the accuracy of the PM-CEMS.
- The beginning of the out of control period is the time corresponding to the completion of an unsuccessful ACA. The end of the out of control period is the time corresponding to the completion of the subsequent successful calibration test.
- During an out of control period the CEMS data may not be used in calculating emission compliance nor be counted towards meeting minimum data availability.
- The PM-CEMS is considered out of control if the required quarterly absolute correlation audit is not conducted during a calendar quarter.

The criteria for excessive inaccuracy are:

- $\pm 10\%$ of the average audit value or 7.5% of the applicable standard, whichever is greater.

- Repeated excessive inaccuracies (i.e., out of control) conditions resulting from the quarterly audits, indicates the QC procedures are inadequate or that the CEMS is incapable of providing quality data.

NOTE: The ACA must be conducted using the calibration kit with the same serial number as the particulate monitor.

1.9.2 RELATIVE RESPONSE AUDIT (RRA)

Perform a Relative Response Audit (RRA) annually. Perform a RRA by collecting three (3) sets of simultaneous Reference Method data and Particulate Monitor data. Determine compliance with the RRA using the criteria specified in 40CFR60, Appendix F. If failed RRA tests trigger the need to conduct an RCA and/or new correlation test, performance and acceptance criteria will be based on the MDNR-approved Sibley CAM Plan and CAM Test Plan.

The RRA will be performed annually and will replace the Absolute Correlation Audit in the quarter when both audits are due.

1.9.3 RESPONSE CORRELATION AUDIT (RCA)

An RCA is required to be performed at least once during each Title V Operating Permit renewal cycle (i.e. once per 5-year period). The RCA is conducted by collecting a minimum of twelve (12) sets of simultaneous Reference Method data and Particulate Monitor data. To pass an RCA the following criteria must be met

- For all 12 data points, the PM-CEMS response value can be no greater than the greatest PM-CEMS response value used to develop the correlation curve;
- For 9 of the 12 data points, the PM-CEMS response value must lie within the PM-CEMS output range used to develop the correlation curve.

The criteria for excessive inaccuracy are:

- At least 75% of a minimum number of 12 sets of PM-CEMS/reference method measurements from the test must fall within a specified area on a graph developed by the calibration relation regression line over the calibration range and the tolerance interval set at $\pm 25\%$ of the emission limit.
- The specified area on a graph is (a) bounded by two lines parallel with the calibration regression line, and offset at a distance $\pm 25\%$ of the numerical emission limit from the calibration regression line on the y-axis and (b) traversing across the calibration range bounded by the lowest and the highest CEMS reading of the calibration test on the x-axis.

The PM-CEMS is considered out of control if the required RCA is not performed during the permit renewal interval (once every 5 years). See 2.6.2 Relative Correlation Audit for details on failure of an RCA. The RCA will replace the Absolute Correlation Audit and Relative Response Audit when done in the same quarter. In the event that a new correlation test is required, the performance and acceptance criteria will be based on the MDNR-approved Sibley CAM Plan and CAM Test Plan.

1.10 CORRECTIVE ACTION PROGRAM

Whenever the PM-CEMS is found to be "out of control" the data generated from the system will not be used to demonstrate a reasonable level of compliance assurance with permit limits or data capture requirements. Corrective action is performed "as soon as possible" after determining the PM-CEMS is not operating according to manufacturer's specifications or is "out of control."

Corrective action is defined as the resolution of problems that occur on a non-routine basis.

1.10.1 SUGGESTED CORRECTIVE ACTION

References to specific PM-CEMS troubleshooting procedures are listed in the Instrument's Operation Manual.

1.11 REPORTS

Documentation of QA/QC data and information is an integral part of any QA Plan. This section describes reports and other records that provide adequate documentation of QA/QC activities. The two primary means of documentation used are:

- Data Acquisition System (DAS).
- Manually prepared QA/QC forms, logs and reports.

During QA audits, the DAS will be operated to collect data in a normal fashion, and will print all instantaneous emissions values for real time comparison with audit standards. The DAS is used not only to document QA/QC data and information, but it also serves as the PM-CEMS data acquisition and processing system.

A number of written QA/QC reports are needed to provide supporting documentation of the continued operation of the PM-CEMS in an acceptable manner. All reports are used to notify individuals of problems related to operation of the PM-CEMS. Completion of these reports is intended to assist in identifying the need for remedial maintenance, training, or supply action, as well as the need to revise operating procedures for this QA Plan.

SECTION 2 – STANDARD OPERATING PROCEDURES

Quality control checks may be defined as those checks performed on a routine basis such as system inspections, periodic calibrations and routine maintenance.

LASER SAFETY WARNING: Any person working on or auditing the particulate monitoring equipment must be adequately trained in Laser Safety and have thoroughly reviewed the operations manual due to the inherent dangers in working with Laser equipment.

2.1 START-UP AND OPERATION

The Instrument and Controls Department maintains a detailed written procedure for start-up of the equipment at the facility. The document contains the step-by-step procedures for starting up and shutting down all equipment at the facility.

2.2 PM-CEMS INSPECTION AND PREVENTIVE MAINTENANCE

A CEMS maintenance log is maintained in the Unit 3 computer room to document system operational status and record any maintenance performed. An electronic file contains a record of the PM-CEMS calibration activities.

The routine inspection begins with a visual inspection of the electrical systems and components. This procedure allows early detection of accidental damage to the PM-CEMS.

The plant technician will examine the data acquisition system's computer screens and files to verify the computer has the correct time, date, and settings as applicable. A calibration history of the calibrations is reviewed for excessive calibration drift on a weekly basis or more often as needed.

Indicator lights and alarms on the system or monitor control panel are examined next. The system indicator lights notify the plant Technician of out-of-range conditions or other potential problems associated with the PM-CEMS. Action is initiated immediately if an indicator light is illuminated; subsequent data acquired may be suspect and will be flagged accordingly.

2.3 CALIBRATION PROCEDURES

The 360 calibration cycle automatically checks and corrects zero and span drift. The calibration cycle can be programmed to activate at selectable hourly intervals, manually activated from either the control room or stack, or externally activated from the programmable logic controller or data acquisition system.

2.3.1 DAILY CALIBRATION CHECK

A daily calibration is performed for the PM-CEMS that is measuring and reporting particulate concentration. Typically the zero and span calibration are programmed to be performed once every 24-hours. The zero calibration is conducted at a measurement level between zero and twenty (0 – 20) percent of instrument measurement range. The span calibration is conducted at a measurement level between fifty and one hundred (50 – 100) percent of instrument measurement range. A copy of the daily calibration for the PM-CEMS will be filed or electronically archived. Table II below illustrates calibration ranges of the PM-CEMS.

Table II. Recommended zero and high level calibration levels

Emission Point	ZERO VALUE (0 – 20% RANGE)	SPAN VALUE (50 – 100% RANGE)
Common stack	TBD	TBD

2.3.2 DAILY PM-CEMS DRIFT ASSESSMENT AND CORRECTIVE ACTION

The PM-CEMS typically performs a calibration once every 24 hours. The PM-CEMS shall be adjusted when the drift exceeds twice the performance specification. The PM-CEMS are considered out-of-control when:

- (1) Either the zero or span calibration drift exceeds 4 percent the applicable performance specification in 40 CFR 60 for five (5) consecutive days, or
- (2) Either the zero or span calibration drift exceeds 8 percent the applicable performance specification in 40 CFR 60 for any single calibration.

Table III below illustrates out-of-control calibration drift criteria for the PM-CEMS.

Table III. Calibration Drift Criteria

Monitor	Level at which CEM shall be adjusted	Level at which CEM is Out-of-Control	
		Any one day	Any five consecutive days
Common stack	4%	8%	4%

If an out-of-control condition exists, corrective action will be initiated immediately. Corrective action steps are identified in the Teledyne Monitor Labs Operation and Maintenance Manual or the Analyzer Operator Manual. Corrective action steps may include: adjustment of the electronics and potentiometers, care of the optics, replacement of the dessicator and/or purge blower air filter. Calibration drift checks will

be repeated following corrective action to verify the PM-CEMS meets calibration requirements and is no longer out-of-control.

During an out-of-control period, the data collected by the PM-CEMS will not be used in determining particulate emissions compliance; nor will it be counted toward meeting the minimum data availability requirements.

2.4 PREVENTIVE MAINTENANCE PROCEDURES

The recommended maintenance schedule is used initially as a guideline and then adjusted for the application following actual field experience. Preventive maintenance checks and procedures are identified in the Maintenance and Trouble Shooting Section of the analyzer Operator Manual.

Some items in the recommended periodic maintenance chart, such as filter changes, will not exhibit a failure condition until probable damage to other components has resulted. These items require special attention for determining replacement frequency. Close and continuous observation of the operating characteristics of the system, with particular notation of any shift, either sudden or prolonged, in one direction of any of the many visual indicators in the system, should prompt a maintenance response and prevent loss of data and/or equipment damage.

The system's equipment alarms are indications that maintenance is required. They do not necessarily indicate the data is invalid. However, they do indicate that the system is operating outside of a design tolerance and inaccurate data and equipment damage will occur if the system is allowed to continue operation with the problems. For this reason, the alarms are exercised on a regular basis to assure that they are operational.

One of the best indications of system performance is the validity of the data it is generating. Scrutiny of the daily calibration results will indicate whether or not there is a need for maintenance.

2.5 CORRECTIVE MAINTENANCE PROCEDURES

A trouble-shooting section is included in each analyzer Operator Manual.

Zero and calibration drift checks will be conducted immediately prior to any maintenance, if possible. Additionally, zero and calibration drift checks will be conducted immediately following any maintenance. If the post-maintenance zero or calibration drift checks show drift in excess of twice the applicable performance specifications, recalibration is conducted in accordance with the Operator Manual.

2.6 PERFORMANCE AUDIT PROCEDURES

2.6.1 ABSOLUTE CORRELATION AUDIT (ACA)

ACAs are required on a quarterly basis, unless an RRA or RCA is conducted in that quarter. The audit is completed and the results are determined using the procedures contained in 40 CFR 60, Appendix F. Acceptable ranges for the ACA filters are included in Table IV.

TABLE IV. ACA Audit Filters

Emission Point	LOW (0 – 20% of Range)	MID (40 – 60% of Range)	HIGH (70 – 100% of Range)
Common stack	TBD	TBD	TBD

For EACH Audit

1. Record the requested data in the appropriate blocks on the data sheet(s) for the analyzer(s) being checked. Each analyzer should have its own data sheet.
2. Open the optical head on the particulate monitor.
3. Install the calibration jig onto the optical head.
4. Alternately insert each of the 3 known particulate standards into the calibration jig. Leave each filter in place for 5 minutes to ensure stable readings. Repeat this process until 3 readings have been made with each filter.
5. Uninstall the calibration jig from the optical head.
6. Close the optical head so that the instrument is reading process conditions again.
7. Calculate and record the average of the monitor's responses (A) for each level of calibration filter (high-, mid- and low-).
8. Using the equations in Appendix D, calculate the mean value and correlation accuracies for each particulate level.

The monitor passes the ACA if, at all three levels of filters, the percentage difference is less than or equal to 10.0 percent of the average audit value or the percentage difference is less than or equal to 7.5 percent of the applicable particulate standard. If these criteria are not met at any level, the monitor is considered out-of-control. Indication will be made on the data sheet(s) whether the monitor(s) passed or failed the calibration error test.

2.6.2 RELATIVE RESPONSE AUDIT (RRA)

The Relative Response Audit requires the support of an independent stack sampling team. Three (3) simultaneous measurements are taken by the contracted test team and the particulate monitor in accordance with 40CFR60, Appendix F, Performance Specification 2. It is recommended that the test team perform duplicate measurements to ensure the maximum accuracy of the sampling.

The RRA will be conducted annually unless an RCA is completed during that same period then an RRA will not be required.

The monitor passes the RRA if all of the following occur:

- (1) The response from all three measurements is less than the highest response used to generate the correlation curve,
- (2) At least two of the three responses lie within the PM-CEMS output range used to develop the correlation curve, and
- (3) At least two of the three responses fall within the area specified in the correlation curve and defined as the regression line $\pm 25\%$ of the numerical emission limit.

2.6.3 RELATIVE CORRELATION AUDIT (RCA)

The Relative Response Audit is conducted in accordance with 40 CFR Part 60, Appendix F, Performance Specification 2, and requires the support of an independent stack sampling team. The MDNR-approved Sibley CAM Plan and CAM Test Plan shall be followed where conflicts arise between 40 CFR Part 60 and the Sibley CAM Plan and CAM Test Plan.

The correlation test includes:

- (1) Paired reference method trains are recommended for collecting manual PM data to identify and screen the reference method data for imprecision and bias;
- (2) test runs may be shorter than 60 minutes in duration (e.g., 20 to 30 minutes);
- (3) convert the reference method results to units consistent with the conditions of the PM CEMS measurements (e.g., mg/acm);
- (4) during each test run coordinate process operations, reference method sampling and PM CEMS operations to ensure that the process is operating at the targeted conditions
 - a. coordinate the start and stop times of each run between the reference method sampling (if batch sampling start the reference method at the same time as the PM CEMS sampling);
 - b. note the times for port changes (and other periods when the reference method sampling may be suspended) on the data sheets (to make any required adjustments);
 - c. properly align the time periods for the PM CEMS and the reference method measurements to account for the PM CEMS response time;

- i. conduct a minimum of 12 sets of CEMS and reference method measurements – additional measurements may be completed and rejected but a minimum of 12 sets is required;
 - ii. report all data, including rejected data;
 - iii. up to five test runs may be rejected without explanation;
 - iv. explicit explanations are required for greater than five rejected runs;
- (5) simultaneous PM CEMS and reference method measurements must be performed in a manner to ensure that the range of data that will be used to establish the correlation for the PM CEMS is maximized. First attempt to maximize the correlation range by following the procedures described in 5 (i) through (iv) (this section). If the three levels described in (i) through (iv) cannot be achieved, use the procedures in section 8.6(5);
 - i. attempt to obtain the three different levels of PM mass concentration by varying process operating conditions, varying PM control device conditions, or by means of PM spiking;
 - ii. the three PM concentration levels used in the correlation tests must be distributed over the complete operating range experienced by the source;
 - iii. at least 20 percent of the minimum 12 measured data points should be contained in each of the following levels:

Correlation Test /RCA	
Level 1	from no PM (zero concentration) emissions to 50 percent of the maximum PM concentration
Level 2	25 to 75 percent of the maximum PM concentration
Level 3	50 to 100 percent of the maximum PM concentration

 - iv. although the above levels overlap, only apply individual run data to one level;
- (6) if three distinct levels of PM concentration cannot be obtained, perform correlation testing over the maximum range of PM concentrations that is practical for the PM CEMS;
- (7) ensure that the range of the data used to establish the correlation for the PM CEMS is maximized by the following:
 - a. zero point data for in-situ instruments is obtained by removing the instrument from the stack and monitoring ambient air on a test bench or
 - b. perform a manual reference method measurement when the flue gas is free of PM emissions or contains very low PM concentrations (e.g., when the process is not operating, but the fans are operating) or
 - c. if neither of the steps are possible, estimate the monitor response when no PM is in the flue gas (e.g., 4 mA =) mg/acm).
- (8) Failure of an RCA requires the following actions:
 - a. Combine RCA data with data from the active PM-CEMS correlation and perform the mathematical evaluations defined in PS-11 for development

- of a PM-CEMS correlation, including examination of alternate correlation models (i.e., linear, polynomial, logarithmic, exponential, and power). If the expanded data base and revised correlation meet PS-11 statistical criteria or Sibley CAM Plan/Test Plan criteria, whichever is less stringent, then use the revised correlation;
- b. If the criteria specified above (in a. above) are not achieved, develop a new PM-CEMS correlation based on revised data. The revised data set must consist of the test results from only the RCA. The new data must meet all requirements of the MDNR-approved Sibley CAM Plan and Test Plan to develop a revised PM-CEMS correlation for 12 sets. The PM-CEMS is considered to be back in controlled status when the revised correlation meets all of the performance criteria specified in the MDNR-approved Sibley CAM Plan and Test Plan;
 - c. If the actions specified above (in a. and b.) do not result in an acceptable correlation, evaluate the cause(s) and comply with the actions below within 90 days after the completion of the failed RCA:
 - i. Completely inspect the PM CEMS for mechanical or operational problems, repair the PM CEMS and repeat the RCA;
 - ii. If you must relocate the PM CEMS to a more appropriate measurement location, perform a new correlation test according to the MDNR-approved CAM Plan and Test Plan;
 - iii. The characteristics of the PM or gas in the flue gas stream may have changed such that the PM CEMS technology is no longer appropriate. If this is the case, install a PM CEMS with measurement technology that is appropriate for the flue gas characteristics. Perform a new correlation test according to the MDNR-approved Sibley CAM Plan and Test Plan;
 - iv. If the corrective actions above (3i through 3iii) were not successful, petition the regulators for approval of alternative criteria or an alternative for continuous PM monitoring.

2.7 SYSTEM AUDIT PROCEDURES

System audits will be performed and recorded in the maintenance logbook. The following checks will be recorded during the system audit and may be revised as operating experience dictates.

- (1) Multiday calibration reports for the previous seven (7) days for all PM-CEMS. Check for trends in drift.
- (2) Verification that correct span values are entered into the computer.
- (3) Examination of the PM-CEMS, noting any alarms displayed and/or that the readings are consistent with monitor operation.

Quarterly system audits will be performed to:

- (1) Check maintenance logbooks for timely and completed repairs.

- (2) Determine the printer is operational and printout is legible, readings are consistent with process conditions.
- (3) Acknowledge that the computer and monitor areas are clean and well maintained.
- (4) Determination that the purge air blower is operational and alignment of monitor is correct.

2.8 DATA BACKUP PROCEDURES

The PM-CEMS data are retained on a data acquisition and handling system (DAS). Particulate Emissions Data is backed up as part of the network or tape backup procedures used for all emissions data collected at the facility.


2.9 DATA REPORTING PROCEDURES

The results from each audit or the routinely generated particulate data are reviewed prior to it being included into reports submitted to the regulatory agencies.

As part of the operating permit requirements, all PM-CEMS data are made available for review, in the form of a computerized database or printed opacity logs, for 24 months. Quarterly compliance reports are submitted to the MDNR within 30 days of the ending quarter as defined in the operating permit. All data will be maintained for the life of the current Title V Operating Permit (5 years).

Note that Appendix B of the CAM Test Plan is not included above. Appendices A through D of the CAM QA/QC Plan are not included either.

Prepared by:



Cheryl Steffan
Environmental Engineer